Diagnostic Engineering Publication

1410/7010

Subject: **Diagnostic Program** C021B
1410/7010 CPU Error Detection
Sequence Number 021
Replaces C021A

I. C021B obsoletes C021A. The general philosophy of C021B is the same as that of C021A with significant changes and additions made to many separate routines. In addition changes were incorporated into C021B to insure compatibility with 1410/7010 Tape Control Program TC50.

II. C021B utilizes only a System Control Card. This card is identified C021B001 and must indicate to the program certain information concerning storage capacity, CPU type (1410 or 7010) and the European Edit Feature.

Enclosures: Pages 169
Card Deck for CARD ONLY SYSTEMS (as punched by UP51)
7 Cards - Card Loader (1-7) and 1 Core Clear
633 Cards No. 001-633 Data Cards
1 Card Execute Card

Distribution: x 1410 with storage capacity 40K or greater
X 7010
Other

C021B

1410/7010 CPU ERROR DETECTION PROGRAM

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2.01.00.0 TEST DESCRIPTION

00.1 MODIFICATIONS

C021B obsoletes and replaces C021A. The most significant changes to the program are as follows:

A. Subroutine No. 09.17 was added to insure a more thorough check of the Zero Balance circuitry.

B. Subroutine No. 10.15 was expanded to include a test of address register settings following an arithmetic operation in which recomplementing is required.

C. Subroutine No. 11.02 was altered slightly to insure that one hundred positions of storage can be cleared to blanks by a Clear Storage instruction.

D. Subroutine No. 13.16 was added to check the result of an indexed operation in which the effective address is generated from addresses which, except for 100K machines, would yield System Check errors.

E. Subroutine No. 18.06 was added to check the effect of a Compare operation in which the Hi-Lo status indicators are required to alternate rapidly and for a sustained period of time.

F. All appropriate subroutines which test operation of the two instructions, Move Characters and Suppress Zeros (MCS) and Move Characters and Edit (MCE), were modified so that these subroutines would function properly on machines with the European Edit Feature. Note that listing comments pertain only to non-European Edit machines.

G. Literal constants were relocated to lower storage locations for more efficient use of available space and to provide for possible future expansion of the program.

H. A modified Autocoder assembly program was used to prepare the listing which provides more rapid and accurate identification of the characters and addresses in actual machine language.

2.01.00.0 TEST DESCRIPTION (continued)

00.2 DESCRIPTION

C021B, like its predecessor, proceeds from relatively simple and fundamental operations to those of relative complexity. The only intentional exception to the foregoing rule occurs at routine No. 16.00 where four subroutines are introduced to test the Data Move operation MLCS. By proving the correct operation of the MLCS instruction, the programming in routine No. 18.00 is greatly facilitated.

The program is divided into routines which are, in turn, subdivided into subroutines. When an operation or a small group of operations is to be checked for the first time, a new routine number of the form MN.00 is assigned, where MN specifies the number of the routine in numeric sequence. Subroutines under MN.00 are identified MN.XY where XY specifies the subroutine number, again in numeric sequence. The term "subroutine" as used here is more properly a "subsection" of a larger routine. Unlike subroutines in the usual sense of the word, these are separate program entities which may, for the most part, be run independently of any other portion of the program. Within the comments of the program listing, the terms "routine" and "subroutine" are occasionally used interchangeably to refer to the current subsection under consideration.

It is anticipated that a CPU malfunction which occurs during the execution of routine Nos. 01.00 through 04.00 will be accompanied by a System Check error. An attempt is made to indicate, by means of a console printer, certain errors that may be experienced in routine Nos. 05.00 through 07.03. These typeouts cannot be bypassed. Beginning with subroutine No. 07.04 and continuing through the remainder of the program, normal TAD options are in effect. Generally speaking, machine troubles should be attended to at the time of their occurrence; this is especially true of troubles that arise during low-numbered sections of the program.

Completion of the program requires that a certain number of loops through the program be made. The number of loops required for completion is determined by a five-digit loop count constant at storage location 01006-01010. As released, this constant is +00100. Within the obvious limits imposed by a five-character area, the CE may alter this value to any other value he chooses.

2.01.00.0 TEST DESCRIPTION (continued)

Within C021B there are several routines which, because of the length of time required to perform them, are executed only the first time through the program and thereafter only in that loop immediately following the one in which the loop count limit is attained. The tests for Halt and Halt-Branch are performed only one time regardless of the number of loops required or the setting of TAD 3. In addition to the routine which tests Halt and Halt-Branch, there exist two other subroutines, No. 30.01 and No. 30.02, each requiring manual intervention, which are performed only during that loop in which the program finds TAD 4 set to a 1. If these subroutine Nos. 30.01 and 30.02 are performed, the latter one resets TAD 4 to a blank in order to prevent repeated testing of them.

00.3 EQUIPMENT REQUIRED

A. Card reader or tape unit to load the program.

B. Console Printer (assumed on channel E)

C. Storage capacity of at least 40K

No additional features are required by this program. C021B is equally applicable to the 1410, the 1410 Accelerator and the 7010.

00.4 CARD DECK

7 cards	Load Program L1A
1 card	Core Clear Card (39999 to 01000)
1 card	System Control Card C021B001
662 cards	Program C021B
1 card	Last Execute Card

00.5 ENGINEERING CHANGE LEVEL OF MACHINE

C021B will operate on 1410's and 7010's of any EC level provided the storage capacity is adequate and unless an Engineering Change modifies the function or operations of the standard instruction set.

2.01.00.0 TEST DESCRIPTION (continued)

00.6 PROGRAM RUN TIMES

The running times listed below in tabular form are for the 1410, the 1410 with the Accelerator Feature No. 1007, and the 7010. Values are given in seconds and are approximate; they do not include the time required to load the program or execute manual operations. In each case the loop counter was initialized to +00100.

	40K	60K	80K	100K
1410	44.8 sec	56 sec*	68 sec*	80 sec*
1410 ACC	37.5	47.3	57.0	67 *
7010	15.2	18.8	22.4	25.9

*Estimated

2.01.01.0 LOADING PROCEDURES

01.1 1410 CARD INPUT

A. Clear storage to blanks

B. Display and alter locations 00000-00011 as follows:

1. RL%1100011$. if reader is on E channel
2. XL¤1100011$. if reader is on F channel

C. Set Mode switch to Run, Computer Reset and Start.

01.2 1410 TAPE INPUT

A. Clear storage to blanks

B. Display and alter locations 00000-00011 as follows:

1. RL%B000011$. if tape unit is on E channel
2. XL¤B000011$. if tape unit is on F channel

C. Set Mode switch to Run, Computer Reset and Start.

2.01.01.0 LOADING PROCEDURES (continued)

01.3 7010 CARD INPUT

A. Clear storage to blanks

B. If reader is on E channel, use 7010 Load key and disregard steps C and D.

C. If reader is on F channel, display and alter locations 00000-00011 to XL␣1100011$.

D. Set Mode switch to Run, Computer Reset and Start.

01.4 7010 TAPE INPUT

A. Clear storage to blanks.

B. If tape unit is on E channel, use 7010 Load key and disregard steps C and D.

C. If tape unit is not on E channel, display and alter locations 00000-00011 as follows:

1. XL␣B000011$. if tape unit is on F channel
2. 3L?B000011$. if tape unit is on G channel
3. 1L!B000011$. if tape unit is on H channel

D. Set Mode switch to Run, Computer Reset and Start.

2.01.02.0 OPERATING PROCEDURES

No special instructions are necessary to run this program. Operation begins immediately upon reading the final Execute Card.

2.01.02.0 OPERATING PROCEDURES (continued)

All TADs are initialized to "not 1" and normal operation of C021B, described below, does not require that any TAD information be entered. By "normal operation" is meant that all typeouts are allowed, there will be no looping of individual subroutines, there will be no error stops (except for routine Nos. 06.00 through 07.03), only one "pass" will be performed, and subroutine Nos. 30.01 and 30.02, which require operator intervention, will be bypassed. The significance of the TADs is as follows:

TAD	Location	Not 1 (Normal)	1
TAD 0	01000	Allow all typeouts	Bypass error typeouts
TAD 1	01001	Not loop subroutine	Loop on subroutine
TAD 2	01002	Not halt on error	Halt on error
TAD 3	01003	One program pass only	Repeat C021B indefinitely
TAD 4	01004	Not perform subroutine Nos. 30.01 and 30.02	Perform subroutine Nos. 30.01 and 30.02

It is recommended that once during the execution of C021B TAD 4 be set to a "1" so that certain functions of the reset keys may be tested by subroutine Nos. 30.01 and 30.02. TAD 4 is the only special TAD used by this program.

The Customer Engineer should note at this time the contrast between TAD information and Control Card information. Data in the form of TADs applies to all installations, irrespective of machine type or configuration; Control Card data furnishes to the program important information which may vary widely from one installation to another. In order that C021B run properly and make fullest utilization of the CPU's capabilities, this information must be made available to the program through a Control Card, properly punched at the individual locations. This program requires Control Card information relating to machine type, storage capacity and the European Edit Feature.

2.01.03.0 OPERATING HINTS AND COMMENTS

With the understanding that the CE occasionally wishes to enter his own instruction sequence and data for the purpose of testing a specific condition and yet leave the main program intact, the following "safe" areas are listed. C021B will not disturb the contents of these locations.

01016 through 01028
01813 through 01993
34422 through 34899, but see following paragraph

Note that no area below address location 01000 can be considered "safe" since the Load Program L1A or Tape Control Program TC50 ( ) resides there, and the areas not used by L1A or TC50 ( ) are used as work areas by C021B.

The CE will observe that not all of storage above the greatest address given in the program listing is available for patching. In order to explain this, it is necessary to know something about the operation of subroutine Nos. 31.01 and 31.02. These two subroutines use the area above 34900 up to the highest available storage location as indicated by the System Control Card. Upper storage locations, in blocks of 10K, may be omitted from the test by altering the System Control Card or by manually altering storage location 01257. As an example, consider a CPU with 100K storage capacity. Normally, the System Control Card for this system will contain a "9" punch in card column 14 indicating that location 99999 is the highest available address. To remove the upper 10K storage locations from the test and thereby make it available for other use, alter address 01257 to an "8" or use a System Control Card, prepared especially for C021B, with an "8" punched into column 14 of card C021B001. In similar fashion, the upper limit of storage utilized by No. 31.01 and No. 31.02 may be reduced in 10K increments. The presence of non-numeric characters in location 01257 or numbers less than "3" will cause the program to assume a 40K system.

2.01.03.0 OPERATING HINTS AND COMMENTS (continued)

TADs or other data within the program may be altered in the following manner:

1. Depress the Inquiry Request key.
2. When "I" types, enter five numeric characters which specify the high-order location, i.e., the low storage address, to be altered.
3. Depress the Inquiry Release key.
4. Depress the Inquiry Request key.
5. Enter desired information or data from the keyboard.
6. Depress the Inquiry Release key.

If an error is made while keying in an address or data (steps 2 or 5), depress the Inquiry Cancel key and resume from the step which preceded the error.

The opportunity to recognize an Inquiry Request is provided in nearly all but the very first routines. Unless the Inquiry Request key is depressed during the execution of subroutine Nos. 31.01 or 31.02, acknowledgment will be almost instantaneous.

C021B provides that if TAD 1 is set to a "1" the current subroutine will be "looped" until TAD 1 is reset, regardless of whether that subroutine is in error or not.

Routine No. 12.00 places a Branch instruction at 00001-00007, the I-address of which is an appropriate restart location. Provided that routine No. 12.00 has been executed one time, the Program or Computer Reset keys may be used for the purpose of restarting the program but with the following exception. During the execution of TAD-optional routine Nos. 30.01 and 30.02, the use of the reset keys is required to proceed through the program. Note that neither the use of the reset keys nor the repeated looping provided by TAD 3 causes the identification to be typed again or the pass counter to be reset.

2.01.03.0 OPERATING HINTS AND COMMENTS (continued)

Give special attention to the comments portion of the listing. These notes are provided so that the CE may have an insight into the method of test and the expected results.

2.01.04.0 PROGRAM STOPS AND RESTARTS

There are only two normal stops that occur during the running of C021B; they are experienced when the operations Halt and Halt-Branch are tested and are accompanied by informative typeouts. Press the Start key to continue. Installations which cannot tolerate programmed stops or manual intervention must modify C021B by overlaying, with a patch card, the instruction following the one labeled AH on page 25. As released, this instruction is not defined with a word mark until one loop of the program has been made. A modification card providing non-stop operation should overlay the no-Word Mark "J" with a Word Mark "J."

If TAD 4 is set to "1" two stops will occur during the execution of subroutine Nos. 30.01 and 30.02. The console printer will direct the CE to depress a reset key and Start.

During most of the time that C021B is being run, an appropriate restart Branch instruction is located at address 00001. Restrictions on this condition are noted in the previous section of this write-up.

2.01.05.0 TYPEOUTS

05.1 NORMAL TYPEOUTS

A. C021B. Test identification typed at start of program.

B. PROG HLT. PRESS START. Typed when the Halt instruction is tested.

C. PROG HLT/BR. PRESS START. Typed when the Halt-Branch instruction is tested.

D. PRESS PROGRAM RESET & START. Associated with subroutine No. 30.02. Typed only if TAD 4 is set to "1."

2.01.05.0 TYPEOUTS (continued)

E. PRESS COMPUTER RESET & START. Associated with subroutine No. 30.02. Typed only if TAD 4 is set to "1."

F. PASS 001. Typed at conclusion of the first pass. If the program is repeated under the control of TAD 3 the pass number is incremented by 1 on each sequential pass. The pass number is not reset by any Reset-Start procedure.

G. EOJ C021B. End of Job message which immediately follows typeout (F) if TAD 3 is not set to "1."

05.2 ERROR TYPEOUTS

Most routines and subroutines within C021B provide an error typeout of the form No. MN.XY where MN specifies the routine number and XY the subroutine number. Sections of the program labeled in this manner which do not provide this typeout are No. 01.00 through No. 04.00, No. 12.00 and No. 31.02. Note that there are no routine Nos. 14.00, 20.00 or 21.00; their omission results from the consolidation of separate phases of a prior program.

In many subroutines, the subroutine number will be typed if any of several errors occur; for example, No. 19.57 will be typed if the SCNRM operation fails (1) to stop on a record mark, (2) to stop on a group mark, (3) if either the A- or B-address registers are incorrect following the scan, or (4) if any data are moved by the operation. In cases of the type just described, it is left to the ingenuity of the CE to determine precisely where the test failed.

Subroutine Nos. 18.01, 23.01, 24.02, 30.01 and 30.02 each provide error typeouts in addition to their respective subroutine numbers. These additional typeouts are discussed in some detail below.

No. 18.01
* VS * ERR W X Y Z

The two asterisks (*) represent the A- and B-field, in that order, of the single character compare operation which was found in error. The letters W X Y Z represent one or more of the ten possible error types that are tested by No. 18.01 and will be printed as a numeric digit (or digits) 1 through 9 or an alphabetic "X" (for Roman numeral "10"). The CE is referred to the COMPARE flow chart for the significance of the error numbers.

2.01.05.0 TYPEOUTS (continued)

No. 23.01
AB PROD XYZ; S/B ZERO

A and B represent the A-field multiplier and the B-field multiplicand, respectively. They may be any of the 64 possible legitimate characters. The product of A and B is given by XYZ and should have been zero; either the product XYZ was not zero or the zero balance indicator did not come on.

No. 23.01
AB PROD XYZ; S/B NZ

Similar to the example just described. Neither factor A nor B was zero or any of its equivalents. The product XYZ should not have been zero but a test of the zero balance indicator found it on.

No. 23.01
AB PROD XYZ; S/B NEG

The A- and B-field factors were so signed that a product having a zone configuration of B-bit only in the units position was expected. The product of A and B did not yield the anticipated negative result.

No. 23.01
AB PROD XYZ; S/B POS

Similar to the example just described. The product of A and B did not yield the anticipated positive result.

No. 23.01
AB PROD UVW; NE BA PROD XYZ

The product of any two single characters should yield the same result regardless of which character is multiplier or multiplicand. This typeout indicates that UVW, the product of A and B, was not equal to XYZ, the product of B and A. The products and their factors are given for comparison.

2.01.05.0 TYPEOUTS (continued)

No. 24.02
B/A EQ Q, REM R; NEQ [A][Q] PLUS R

Ð A, Q and R represent signed integers with the restriction that A is never equal to zero. This typeout indicates a failure to recover the dividend B when the product of the divisor A and the quotient Q is algebraically added to the remainder R.

No. 24.02
00B/A CAUSED DIV OFLOW

A test of the Divide Overflow indicator found it on after performing the indicated division. Since A is not allowed to be equal to zero, the indicator should never come on.

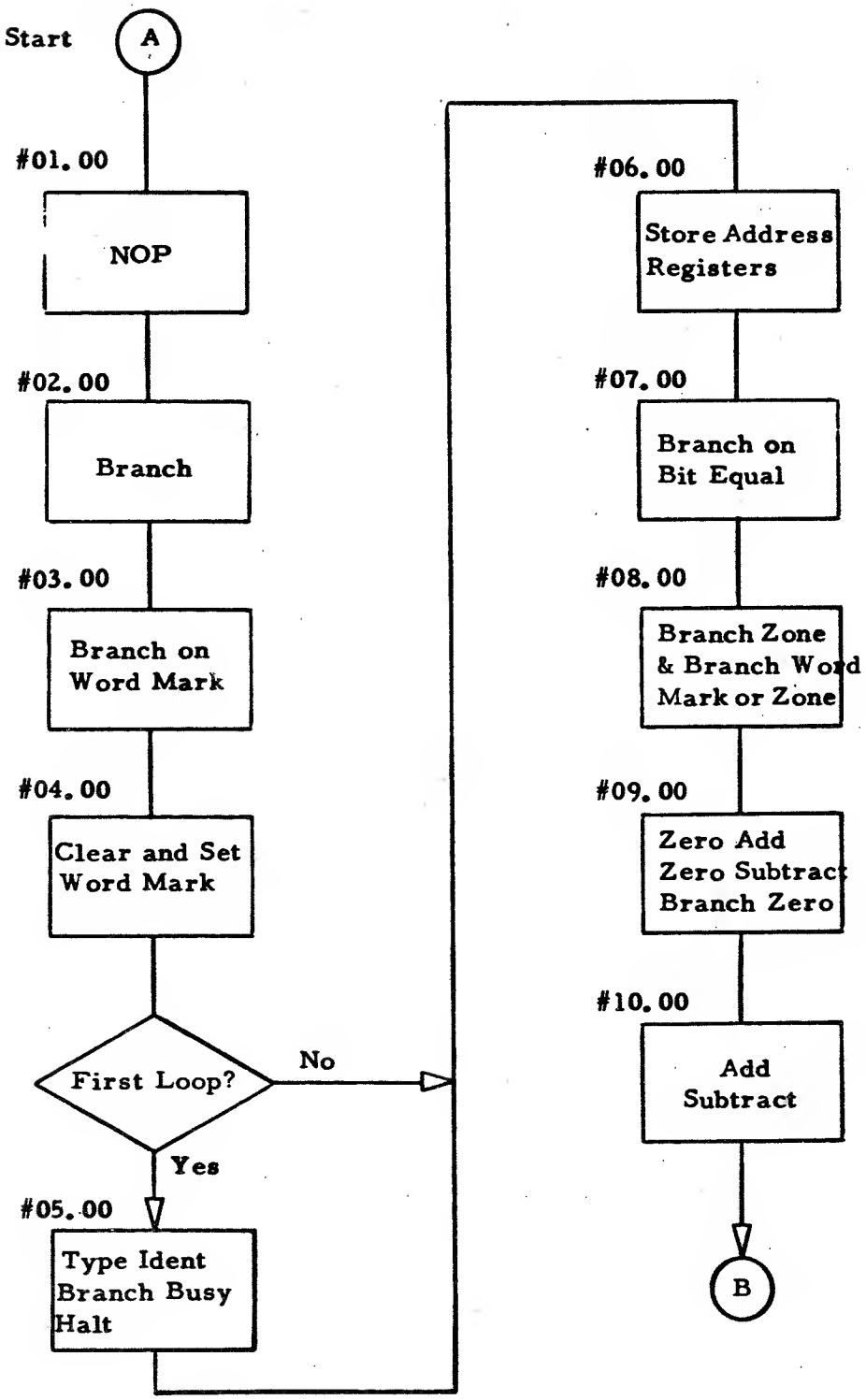
No. 30.01
B EQUAL A RESET
ARITH OFLOW RESET
DIV OFLOW RESET
ZERO BAL RESET

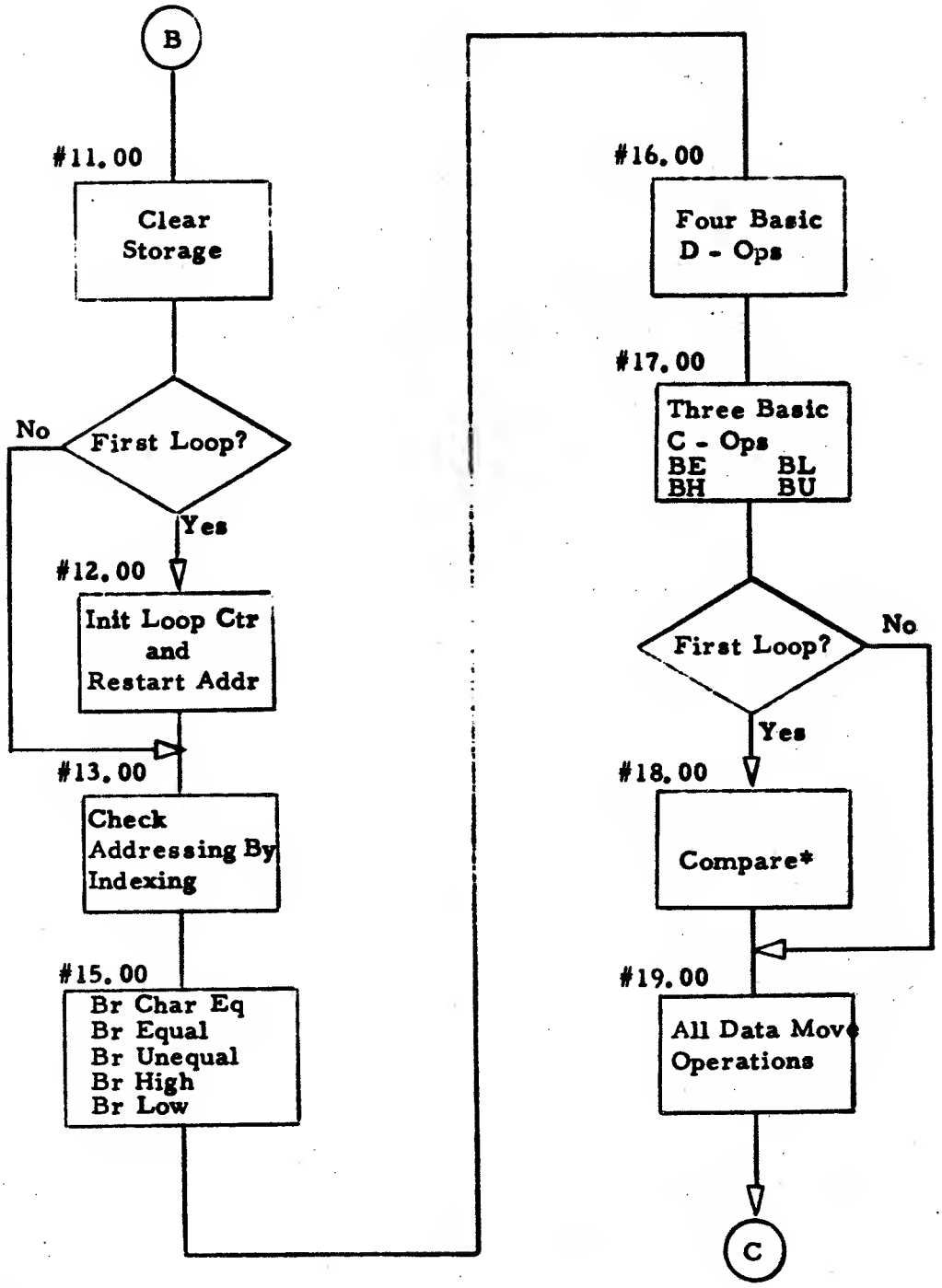
Subroutine No. 30.01 tests certain functions of the Program Reset key. This typeout points out that one or more of the specified indicators was reset by the Program Reset key.

No. 30.02
FAIL TO SET B<A
ARITH OFLOW NOT RESET
DIV OFLOW NOT RESET
ZERO BAL NOT RESET

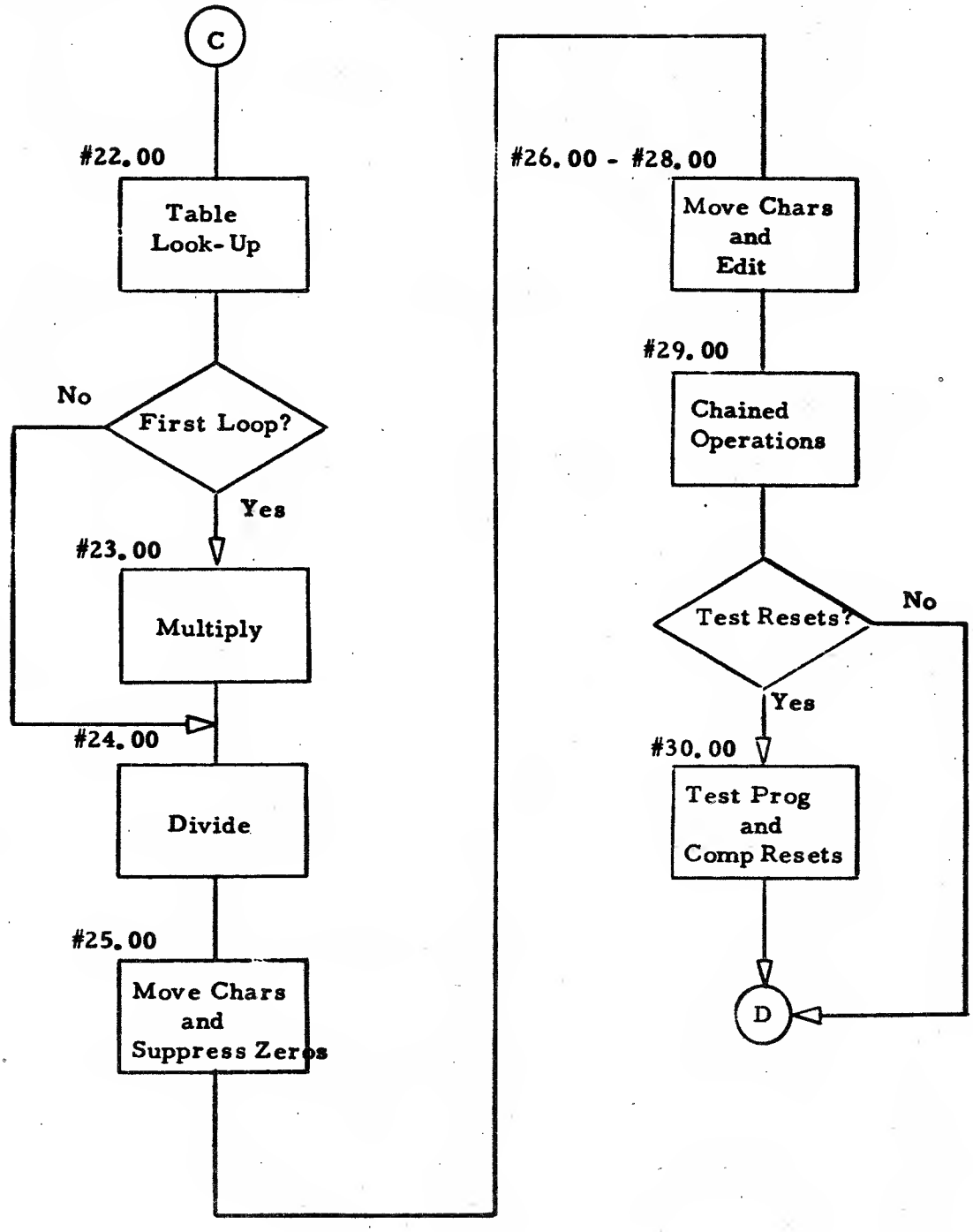
In a manner similar to that just described in the preceding example, some functions of the Computer Reset key are tested. This typeout will inform the CE of the failure or failures detected by this subroutine.

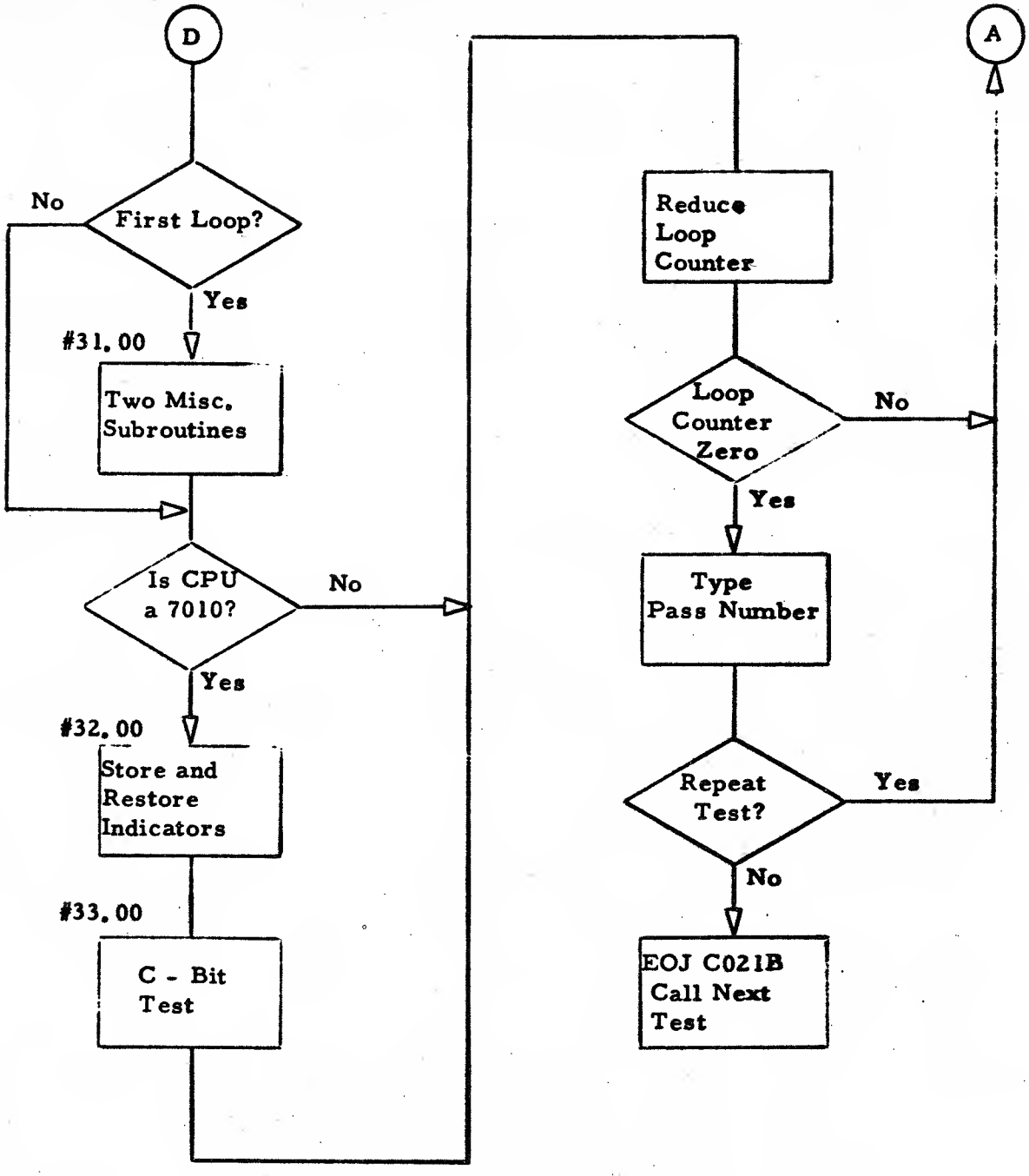
NOTES


Start
A
#01.00
NOP
#02.00
Branch
#03.00
Branch on Word Mark
#04.00
Clear and Set Word Mark
First Loop?
No
Yes
#05.00
Type Ident Branch Busy Halt
#06.00
Store Address Registers
#07.00
Branch on Bit Equal
#08.00
Branch Zone & Branch Word Mark or Zone
#09.00
Zero Add Zero Subtract Branch Zero
#10.00
Add Subtract
B

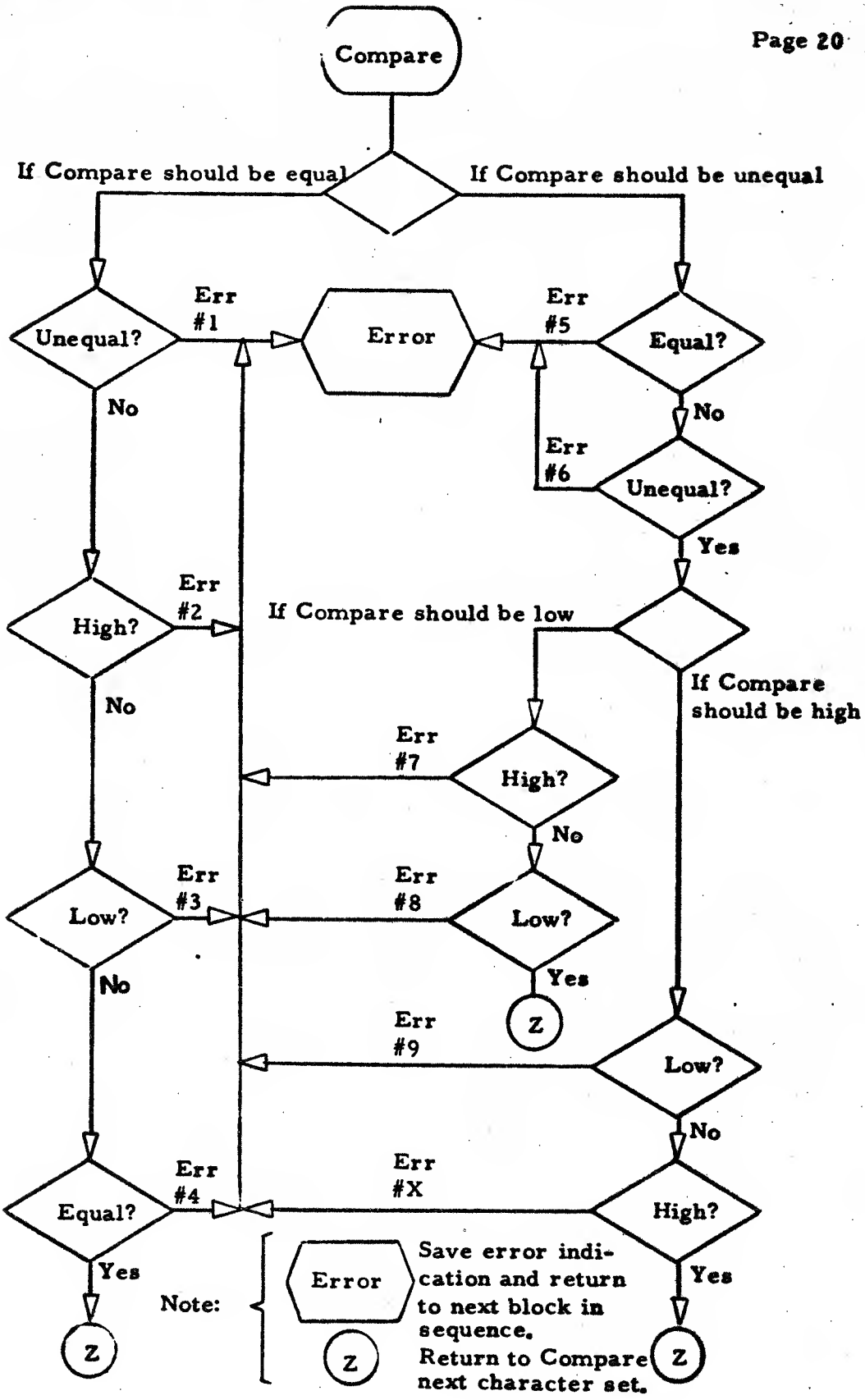


* See detailed Compare flow chart, Page 015


C
#22.00
Table Look-Up
No
First Loop?
Yes
#23.00
Multiply
#24.00
Divide
#25.00
Move Chars and Suppress Zeros
#26.00 - #28.00
Move Chars and Edit
#29.00
Chained Operations
Test Resets?
No
Yes
#30.00
Test Prog and Comp Resets
D


D
No
First Loop?
Yes
#31.00
Two Misc. Subroutines
Is CPU a 7010?
No
Yes
#32.00
Store and Restore Indicators
#33.00
C - Bit Test
Reduce Loop Counter
Loop Counter Zero
No
Yes
Type Pass Number
Repeat Test?
Yes
No
EOJ C021B Call Next Test
A

COMPARE flow chart to be used in analyzing error typeouts.



```
PGLIN     LABEL     OPCOD   OPERAND                                          CT  ADDRS  INSTRUCTION
1002                CTL     3
1003                LINES   36
1004                LOAD
1005
1006      SYSCTL    EQU     1256
1007      CTLIND    EQU     1230
1008      IOENT     EQU     1250
1009      START     EQU     2000
1010
1011                ORG     SYSCTL   NOTE -- THE ONLY POSITIONS IN THE SYSTEM      01256
1012                        CONTROL CARD REQUIRED BY THIS PROGRAM ARE THOSE
1013                        WHICH PROVIDE LOCATIONS 01256, 01257 AND 01261.
1014                        THIS INFORMATION COMES FROM COLUMNS 13, 14 AND 18
1015                        OF THE SYSTEM CONTROL CARD AND INDICATES, RESPEC-
1016                        TIVELY, WHETHER THE CPU IS 1410 OR 7010, MAXIMUM
1017                        CPU STORAGE CAPACITY AND WHETHER EUROPEAN EDIT
1018                        FEATURE IS TO BE TESTED.
1019
1020                DC      @                              *@                33  01288
1021      LOWLOC    EQU     *
1022
1023                ORG     CTLIND                                           01230
1024
1025                DC      @          @                                      9  01238
1026                DCW     @0*11*10213U@      NOT 10K AND NOT 20K, SEQUENCE 11  01249
1027                                           NO. 021, DUMP TO 34999 ON TAPE
```

```
PGLIN    LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1029              ORG    IDENT                                               01250
1030
1031              DCW    @C021B@,G        PROGRAM IDENTIFICATION          5  01254
1032
1033              ORG    1000                                                01000
1034
1035              DC     @ @              ALLOW ALL TYPEOUTS              1  01000
1036                     @ @              DO NOT LOOP ON ERROR            1  01001
1037                     @ @              DO NOT HALT ON ERROR            1  01002
1038                     @ @              PERFORM ONLY ONE PASS           1  01003
1039                     @ @,G            NOT DO ROUTINES #30.01 OR #30.02 1  01004
1040              ORG    *                                                   01006
1041
1042     PCC      DCW    &00100           LOOP COUNT CONSTANT             5  01010
1043     PCCWK            @     @          LOOP COUNT WORK AREA            5  01015
```

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
1045		ORG	1029	THREE COMMON SUBROUTINES		01029	
1046							
1047	TYPE	SBR	*&9	COMMON TYPE ROUTINE	7	01029	G 01044 B
1048		WCP	0		10	01036	M %TO 00000 W
1049		SBR	*&20		7	01046	G 01072 B
1050		BCB1	*-23		7	01053	R 01036 2G
1051		BA1	*&1		7	01060	R 01067 M
1052		B	0		7	01067	J 00000
1053							
1054	TYPCK	SBR	*&39	TYPE AND TAD CHECK ROUTINE	7	01074	G 01119 B
1055		SBR	*&65		7	01081	G 01152 B
1056		A	*-17,*&54		11	01088	A 01081 01152
1057		BBE	*&25,TAD0,1		12	01099	W 01135 01000 1
1058		WCP	0		10	01111	M %TO 00000 W
1059		BCB1	*-16		7	01121	R 01111 2G
1060		BA1	*&1		7	01128	R 01135 M
1061		BBE	*&8,TAD2,1		12	01135	W 01154 01002 1
1062		B	0		7	01147	J 00000
1063		H	*-12		6	01154	. 01147
1064							
1065	AA	SBR	*&61	INTERNAL ADDRESS ALTER ROUTINE	7	01160	G 01227 B
1066		RCP	*&26		10	01167	M %TO 01202 RS
1067		BNT1	*&39		7	01177	R 01222 BT
1068		BEX1	*-23,TM		7	01184	R 01167 MG
1069		BA1	*&1		7	01191	R 01198 M
1070		RCPW	0		10	01198	L %TO 00000 RS
1071		BEX1	*-16,SM		7	01208	R 01198 MG
1072		BA1	*&1		7	01215	R 01222 M
1073		B	0		7	01222	J 00000
1074		H		DEFINE PRECEDING INSTR LENGTH	1	01229	.

```
PGLIN   LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1076              ORG    START            PROGRAM BEGINS HERE                   02000
1077
1078      ROUTINE 01.00  CHECK LONG NO-OP INSTRUCTION
1079              NCP                                                      1  02000  N
                                  .GTS                WBS
1080              DC     @ 123456789080.TMB/STUVWXYZ+,%SSM@                 32  02032
                                 ,  R.D          Q  LLG
1081                     @-JKLMNOPQR.$*B,L&ABCDEFGHIM.¤BTM@                 32  02064
1082
1083      ROUTINE 02.00  CHECK UNCOND BR INST.  THIS ROUTINE ASSUMES THAT
1084                     WM-BL WILL GIVE INSTRUCTION CK IF BRANCH FAILS
1085
1086              B      *&1              SET AND STEP IAR TO SAME ADDRESS   7  02065  J 02072
1087              B      *&2              SHOULD SKIP FOLWNG INVALID OPCODE  7  02072  J 02080
1088              DCW    @ @                                                1  02079
1089
1090      ROUTINE 03.00  CHECK BRANCH ON WORD MARK INSTRUCTION
1091    AC        BW     AD,AD            SHOULD NOT BR, INST CK IF IT DOES 12  02080  V 02105 02105 1
1092              BW     AE,*&1           SHOULD BRANCH, INST CK IF NO BR   12  02092  V 02106 02104 1
1093              DCW    @ @                                                1  02104
                          G
1094    AD        DC     @M@                                                1  02105
1095
1096      ROUTINE 04.00  CHECK CLEAR AND SET WORD MARK INSTRUCTIONS
1097
1098    AE        CW     AC,AE            TRY TO CLEAR WMS AT TWO PLACES    11  02106  ¤ 02080 02106
1099              BW     AF-1,AC          SHOULD NOT BR, INST CK IF IT DOES 12  02117  V 02165 02080 1
1100              BW     AF,AE            DITTO                             12  02129  V 02166 02106 1
1101              SW     AE,AC            RESTORE WMS PREVIOUSLY CLEARED    11  02141  , 02106 02080
1102              BW     *&4,AE           TEST AE FOR WORD MARK             12  02152  V 02167 02106 1
1103    AF        DCW    @ 12@            INSTRUCTION CK IF NO WM AT AE      3  02166
1104              BW     *&2,AC           TEST AC FOR WORD MARK             12  02167  V 02180 02080 1
1105              DCW    @ @              INSTRUCTION CK IF NO WM AT AC      1  02179
1106
1107      ROUTINE 05.00  TYPE IDENT, CK TYPEWR BUSY, HALT, HALT/BR.
1108                     THESE OPS PERFORMED ONLY FIRST TIME THROUGH
1109
1110              NOPWM                                                      1  02180  N
1111              B      AJ               THIS BR NOT TAKEN FIRST TIME THRU  7  02181  J 02367
```

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PGLIN   LABEL    OPCOD  OPERAND                                          CT  AODRS  INSTRUCTION

1112             SW     WDSEP,*-17                                       11  02188  , 33022 02181
1113     AG      WCP    IDENT            TYPE PROGRAM IOENTIFICATION     10  02199  M %TO 01250 W
                                                                                      G
1114             BA1    *&1              RESET I/O INTERLOCK              7  02209  R 02216 M
1115             WCP    BUSYNG           TRY TO INOICATE FAILURE         10  02216  M %TO 02311 W
1116             BCB1   *&2              SHOULO BR BUSY, RESET I/O INTLK  7  02226  R 02234 2
1117             DCW    @ @              INSTR CK IF TYPEWR FAIL RAISE BSY 1  02233
1118             ORG    *                CREATE NEW CARD                     02234
1119     AH      NOPWM                                                    1  02234  N
1120             B      AJ               PUT WM HERE FOR NONSTOP OPERATION 7  02235  J 02367
1121             ORG    *                CREATE NEW CARD                     02242
1122             BW     AJ,997           BRANCH IF RUNNING NON-STOP      12  02242  V 02367 00997 1
1123             WCP    GOMSG1                                          10  02254  M %TO 02318 W
1124             BCB1   *-16                                             7  02264  R 02254 2
                                                                                      G
1125             BA1    *&1                                              7  02271  R 02278 M
1126             H                       SHOULD HALT                      1  02278  .
1127             WCP    GOMSG2                                          10  02279  M %TO 02341 W
1128             BCB1   AI               TAKE THIS ONLY IF HALT FAILS     7  02289  R 02310 2
                                                                                      G
1129             BA1    *&1                                              7  02296  R 02303 M
1130             H      AJ               SHOULO HALT/BR.  INST CK IF NOT  6  02303  . 02367
1131     AI      DCW    @ 1@                                             2  02310
1132
1133     BUSYNG         @#05.00@,G       TYPEO IF TYPEWRITER BUSY FAILURE 6  02311
1134     GOMSG1         @PROG HLT.  PRESS START@,G                      22  02318
1135     GOMSG2         @PROG HLT/BR.  PRESS START@,G                   25  02341
```

```
PGLIN   LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1137      ROUTINE 06.00  CHECK OPERATION OF SAR AND SBR INSTRUCTIONS
1138
1139    AJ        B      AK                 I-ADDR MODIFIED WITHIN ROUTINE   7  02367  J 02374
1140    AK        NOPWM              NOTE. BR TO 00000 INDICATES SBR FAILURE  1  02374  N
1141              B      AL               . BR TO 00001 INDICATES SAR FAILURE  7  02375  J 02427
1142              SW     AK&1                                                6  02382  , 02375
1143              CW     1,AN&1             SET UP A & B ADDR REGISTERS      11  02388  ¤ 00001 02497
1144              SBR    AJ&5                                                7  02399  G 02372 B
1145              SAR    AJ&5                                                7  02406  G 02372 A
1146              SBR    AJ&5                                                7  02413  G 02372 B
1147              B      AJ                                                  7  02420  J 02367
1148    AL        WCP    ER0600                                             10  02427  M %TO 02489 W
1149              BCB1   *-16                                                7  02437  R 02427 2
                                                                                         G
1150              BA1    *&1                                                 7  02444  R 02451 M
1151              H                                                          1  02451  .
1152    AM        CW     1,2                                                11  02452  ¤ 00001 00002
1153              SAR    ABHOLD                                              7  02463  G 02488 A
1154              SBR    ABHOLD                                              7  02470  G 02488 B
1155              B      AM                                                  7  02477  J 02452
1156    ABHOLD    DCW    00000                                               5  02488
1157     ER0600          @#06.00@,G    BOTH SAR & SBR FAIL.  PRESS START    6  02489
1158                                  TO LOOP.  FIX BEFORE PROCEEDING.
1159    AN        CW     AO&1,2             SET UP A & B ADDR REGISTERS      11  02496  ¤ 02536 00002
1160              SAR    AJ&5                                                7  02507  G 02372 A
1161              SBR    AJ&5                                                7  02514  G 02372 B
1162              SAR    AJ&5                                                7  02521  G 02372 A
1163              B      AJ                                                  7  02528  J 02367
1164    AO        CW     AK&1               RESET NOP/BR SWITCH              6  02535  ¤ 02375
1165              SAR    AJ&5               RESTORE I-ADDR OF AJ             7  02541  G 02372 A
1166              SW     1                  SET WM BACK IN LOC 00001         6  02548  , 00001
```

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PGLIN    LABEL      OPCOO  OPERANO                                          CT  AODRS  INSTRUCTION

1168       ROUTINE 07.00  CHECK OPERATION OF BRANCH BIT EQUAL INSTRUCTION
1169
1170       SUB-RTN 07.01
1171                BBE    AP,*,1            SHOULD BRANCH                  12  02554  W 02617 02565 1
1172                WCP    ER0701                                           10  02566  M %TO 02610 W
1173                BCB1   *-16                                              7  02576  R 02566 2
1174                BA1    *&1                                               7  02583  R 02590 G M
1175                H                                                        1  02590  .
1176                BBE    *&1,*,1             THESE INSTRUCTIONS PROVIDE   12  02591  W 02603 02602 1
1177                B      *-18              TIGHT LOOP IN EVENT OF FAILURE  7  02603  J 02591
1178      ER0701    DCW    @#07.01@,G    BBE 1 EQ 1 FAILS.  PRESS START      6  02610
1179                                     TO LOOP.  FIX BEFORE PROCEEDING.
1180       SUB-RTN 07.02
1181      AP        BBE    *&8,AQ&11,1       SHOULD NOT BRANCH              12  02617  W 02636 02698 1
1182                B      AQ                                                7  02629  J 02687
1183                WCP    ER0702                                           10  02636  M %TO 02680 W
1184                BCB1   *-16                                              7  02646  R 02636 2
1185                BA1    *&1                                               7  02653  R 02660 G M
1186                H                                                        1  02660  .
1187                BBE    *&1,AQ&11,1         THESE INSTRUCTIONS PROVIDE   12  02661  W 02673 02698 1
1188                B      *-18              TIGHT LOOP IN EVENT OF FAILURE  7  02673  J 02661
1189      ER0702    DCW    @#07.02@,G    BBE FAILURE.  PRESS START TO LOOP.  6  02680
1190                                     FIX THIS BEFORE PROCEEDING.
1191       SUB-RTN 07.03
1192      AQ        BBE    *&8,AP&11,L T     SHOULD NOT BRANCH              12  02687  W 02706 02628 L T
1193                B      AR                                                7  02699  J 02757
1194                WCP    ER0703                                           10  02706  M %TO 02750 W
1195                BCB1   *-16                                              7  02716  R 02706 2
1196                BA1    *&1                                               7  02723  R 02730 G M
1197                H                                                        1  02730  .
1198                BBE    *&1,AP&11,L T       THESE INSTRUCTIONS PROVIDE   12  02731  W 02743 02628 L T
1199                B      *-18              TIGHT LOOP IN EVENT OF FAILURE  7  02743  J 02731
1200      ER0703    DCW    @#07.03@,G    SAME AS #07.02 ABOVE                6  02750
1201       SUB-RTN 07.04
1202      AR        BBE    AU-19,*,2         SHOULD BRANCH                  12  02757  W 02815 02768 2
1203                BBE    AS,TAD0,1                                        12  02769  W 02795 01000 1
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PGLIN    LABEL     OPCOD  OPERAND                                    CT  ADORS  INSTRUCTION

1204               B      TYPE                                        7  02781  J 01029
1205               DCW    @#07.04@,G        BBE 2 EQ 2 FAILURE        6  02793
1206     AS        BBE    AT,TAD2,1                                  12  02795  W 02814 01002 1
1207               B      *&2                                         7  02807  J 02815
1208     AT        H                                                  1  02814  .
1209               BNQ    AA                TEST FOR INQUIRY REQUEST  7  02815  J 01160 Q
1210               BBE    AR,TAD1,1                                  12  02822  W 02757 01001 1
1211       SUB-RTN 07.05
1212     AU        BBE    *&8,AX&11,2       SHOULD NOT BRANCH         12  02834  W 02853 02929 2
1213               B      AX-19                                       7  02846  J 02899
1214               BBE    AV,TAD0,1                                  12  02853  W 02879 01000 1
1215               B      TYPE                                        7  02865  J 01029
1216               DCW    @#C7.05@,G        BBE NOT-2 & 2 BITS        6  02877
1217     AV        BBE    AW,TAD2,1                                  12  02879  W 02898 01002 1
1218               B      *&2                                         7  02891  J 02899
1219     AW        H                                                  1  02898  .
1220               BNQ    AA                TEST FOR INQUIRY REQUEST  7  02899  J 01160 Q
1221               BBE    AU,TAD1,1                                  12  02906  W 02834 01001 1
1222       SUB-RTN 07.06
                                    L                                                          L
1223     AX        BBE    *&8,AU&11,B       SHOULD NOT BRANCH         12  02918  W 02937 02845 B
1224               B      BA-19                                       7  02930  J 02983
1225               BBE    AY,TAD0,1                                  12  02937  W 02963 01000 1
1226               B      TYPE                                        7  02949  J 01029
1227               DCW    @#C7.06@,G        BBE 2 & NOT-2 BITS        6  02961
1228     AY        BBE    AZ,TAD2,1                                  12  02963  W 02982 01002 1
1229               B      *&2                                         7  02975  J 02983
1230     AZ        H                                                  1  02982  .
1231               BNQ    AA                TEST FOR INQUIRY REQUEST  7  02983  J 01160 Q
1232               BBE    AX,TAD1,1                                  12  02990  W 02918 01001 1
1233       SUB-RTN 07.07
1234     BA        BBE    BD-19,*,4         SHOULD BRANCH             12  03002  W 03060 03013 4
1235               BBE    BB,TAD0,1                                  12  03014  W 03040 01000 1
1236               B      TYPE                                        7  03026  J 01029
1237               DCW    @#C7.07@,G        BBE 4 EQ 4 FAILURE        6  03038
1238     BB        BBE    BC,TAD2,1                                  12  03040  W 03059 01002 1
1239               B      *&2                                         7  03052  J 03060
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PGLIN    LABEL     OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION

1240     BC        H                                                  1  03059  .
1241               BNQ    AA                TEST FOR INQUIRY REQUEST  7  03060  J 01160 Q
1242               BBE    BA,TAD1,1                                  12  03067  W 03002 01001 1
1243       SUB-RTN 07.08
1244     BD        BBE    *&B,BG&11,4       SHOULD NOT BRANCH         12  03079  W 03098 03174 4
1245               B      BG-19                                      7  03091  J 03144
1246               BBE    BE,TAD0,1                                  12  03098  W 03124 01000 1
1247               B      TYPE                                       7  03110  J 01029
1248               DCW    @#07.08@,G        BBE NOT-4 & 4 BITS        6  03122
1249     BE        BBE    BF,TAD2,1                                  12  03124  W 03143 01002 1
1250               B      *&2                                        7  03136  J 03144
1251     BF        H                                                  1  03143  .
1252               BNQ    AA                TEST FOR INQUIRY REQUEST  7  03144  J 01160 Q
1253               BBE    BD,TAD1,1                                  12  03151  W 03079 01001 1
1254       SUB-RTN 07.09
1255     BG        BBE    *&B,BD&11,.       SHOULD NOT BRANCH         12  03163  W 03182 03090 .
1256               B      BJ-19                                      7  03175  J 03228
1257               BBE    BH,TAD0,1                                  12  03182  W 03208 01000 1
1258               B      TYPE                                       7  03194  J 01029
1259               DCW    @#07.09@,G        BBE 4 & NOT-4 BITS        6  03206
1260     BH        BBE    BI,TAD2,1                                  12  03208  W 03227 01002 1
1261               B      *&2                                        7  03220  J 03228
1262     BI        H                                                  1  03227  .
1263               BNQ    AA                TEST FOR INQUIRY REQUEST  7  03228  J 01160 Q
1264               BBE    BG,TAD1,1                                  12  03235  W 03163 01001 1
1265       SUB-RTN 07.10
1266     BJ        BBE    BM-19,*,8         SHOULD BRANCH             12  03247  W 03305 03258 8
1267               BBE    BK,TAD0,1                                  12  03259  W 03285 01000 1
1268               B      TYPE                                       7  03271  J 01029
1269               DCW    @#07.10@,G        BBE 8 EQ 8 FAILURE        6  03283
1270     BK        BBE    BL,TAD2,1                                  12  03285  W 03304 01002 1
1271               B      *&2                                        7  03297  J 03305
1272     BL        H                                                  1  03304  .
1273               BNQ    AA                TEST FOR INQUIRY REQUEST  7  03305  J 01160 Q
1274               BBE    BJ,TAD1,1                                  12  03312  W 03247 01001 1
1275       SUB-RTN 07.11
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1276      BM         BBE    *&8,BP&11,8      SHOULD NOT BRANCH 12  03324  W 03343 03419 8
1277                 B      BP-19                              7  03336  J 03389
1278                 BBE    BN,TAD0,1                         12  03343  W 03369 01000 1
1279                 B      TYPE                               7  03355  J 01029
1280                 DCW    @#07.11@,G       BBE NOT-8 & 8 BITS 6  03367
1281      BN         BBE    BD,TAD2,1                         12  03369  W 03388 01002 1
1282                 B      *&2                                7  03381  J 03389
1283      BO         H                                         1  03388  .
1284                 BNQ    AA               TEST FOR INQUIRY REQUEST 7  03389  J 01160 Q
1285                 BBE    BM,TAD1,1                         12  03396  W 03324 01001 1
1286        SUB-RTN 07.12
1287      BP         BBE    *&8,BM&11,G      SHOULD NOT BRANCH 12  03408  W 03427 03335 G
1288                 B      BS-19                              7  03420  J 03473
1289                 BBE    BQ,TAD0,1                         12  03427  W 03453 01000 1
1290                 B      TYPE                               7  03439  J 01029
1291                 DCW    @#07.12@,G       BBE 8 & NOT-8 BITS 6  03451
1292      BQ         BBE    BR,TAD2,1                         12  03453  W 03472 01002 1
1293                 B      *&2                                7  03465  J 03473
1294      BR         H                                         1  03472  .
1295                 BNQ    AA               TEST FOR INQUIRY REQUEST 7  03473  J 01160 Q
1296                 BBE    BP,TAD1,1                         12  03480  W 03408 01001 1
1297        SUB-RTN 07.13
1298      BS         BBE    BV-19,*,8(S)     SHOULD BRANCH     12  03492  W 03550 03503 8(S)
1299                 BBE    BT,TAD0,1                         12  03504  W 03530 01000 1
1300                 B      TYPE                               7  03516  J 01029
1301                 DCW    @#07.13@,G       BBE A EQ A BIT FAILURE 6  03528
1302      BT         BBE    BU,TAD2,1                         12  03530  W 03549 01002 1
1303                 B      *&2                                7  03542  J 03550
1304      BU         H                                         1  03549  .
1305                 BNQ    AA               TEST FOR INQUIRY REQUEST 7  03550  J 01160 Q
1306                 BBE    BS,TAD1,1                         12  03557  W 03492 01001 1
1307        SUB-RTN 07.14
1308      BV         BBE    *&8,BY&11,8(S)   SHOULD NOT BRANCH 12  03569  W 03588 03664 8(S)
1309                 B      BY-19                              7  03581  J 03634
1310                 BBE    BW,TAD0,1                         12  03588  W 03614 01000 1
1311                 B      TYPE                               7  03600  J 01029
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PGLIN   LABEL    OPCDD  OPERAND                                  CT  ADDRS  INSTRUCTION

1312             OCW    @#07.14@,G       BBE NOT-A EQ A BIT      6  03612
1313    BW       BBE    BX,TA02,1                               12  03614  W 03633 01002 1
1314             B      *&2                                      7  03626  J 03634
1315    BX       H                                               1  03633  .
1316             BNQ    AA               TEST FOR INQUIRY REQUEST 7  03634  J 01160 Q
1317             BBE    BV,TA01,1                               12  03641  W 03569 01001 1
1318      SUB-RTN 07.15
1319    BY       BBE    *&8,BV&11,L      SHOULD NOT BRANCH       12  03653  W 03672 03580 L
1320             B      CB-19                                    7  03665  J 03718
1321             BBE    BZ,TA00,1                               12  03672  W 03698 01000 1
1322             B      TYPE                                     7  03684  J 01029
1323             DCW    @#07.15@,G       BBE A EQ NOT-A BITS     6  03696
1324    BZ       BBE    CA,TA02,1                               12  03698  W 03717 01002 1
1325             B      *&2                                      7  03710  J 03718
1326    CA       H                                               1  03717  .
1327             BNQ    AA               TEST FOR INQUIRY REQUEST 7  03718  J 01160 Q
1328             BBE    BY,TA01,1                               12  03725  W 03653 01001 1
1329      SUB-RTN 07.16
1330    CB       BBE    CE-19,*,-        SHOULD BRANCH           12  03737  W 03795 03748 -
1331             BBE    CC,TA00,1                               12  03749  W 03775 01000 1
1332             B      TYPE                                     7  03761  J 01029
1333             DCW    @#07.16@,G       BBE B EQ B BIT FAILURE  6  03773
1334    CC       BBE    CD,TA02,1                               12  03775  W 03794 01002 1
1335             B      *&2                                      7  03787  J 03795
1336    CO       H                                               1  03794  .
1337             BNQ    AA               TEST FOR INQUIRY REQUEST 7  03795  J 01160 Q
1338             BBE    CB,TA01,1                               12  03802  W 03737 01001 1
1339      SUB-RTN 07.17
1340    CE       BBE    *&8,CH&11,-      SHOULD NOT BRANCH       12  03814  W 03833 03909 -
1341             B      CH-19                                    7  03826  J 03879
1342             BBE    CF,TA00,1                               12  03833  W 03859 01000 1
1343             B      TYPE                                     7  03845  J 01029
1344             DCW    @#07.17@,G       BBE NOT-B EQ B BIT      6  03857
1345    CF       BBE    CG,TA02,1                               12  03859  W 03878 01002 1
1346             B      *&2                                      7  03871  J 03879
1347    CG       H                                               1  03878  .
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1348               BNQ    AA              TEST FOR INQUIRY REQUEST          7  03879  J 01160 Q
1349               BBE    CE,TAD1,1                                        12  03886  W 03814 01001 1
1350       SUB-RTN 07.18
1351     CH        BBE    *&8,CE&11,M     SHOULD NOT BRANCH                12  03898  W 03917 03825 SM
1352               B      CK-19                                             7  03910  J 03963
1353               BBE    CI,TAD0,1                                        12  03917  W 03943 01000 1
1354               B      TYPE                                              7  03929  J 01029
1355               DCW    @#07.18@,G      BBE B EQ NOT-8 BITS               6  03941
1356     CI        BBE    CJ,TAD2,1                                        12  03943  W 03962 01002 1
1357               B      *&2                                               7  03955  J 03963
1358     CJ        H                                                        1  03962  .
1359               BNQ    AA              TEST FOR INQUIRY REQUEST          7  03963  J 01160 Q
1360               BBE    CH,TAD1,1                                        12  03970  W 03898 01001 1
1361       SUB-RTN 07.19
1362     CK        BBE    *&8,*,          SHOULD NOT BRANCH                12  03982  W 04001 03993
1363               B      CN-19                                             7  03994  J 04047
1364               BBE    CL,TAD0,1                                        12  04001  W 04027 01000 1
1365               B      TYPE                                              7  04013  J 01029
1366               DCW    @#07.19@,G      BBE FAILURE, NO-BITS CAUSED BR    6  04025
1367     CL        BBE    CM,TAD2,1                                        12  04027  W 04046 01002 1
1368               B      *&2                                               7  04039  J 04047
1369     CM        H                                                        1  04046  .
1370               BNQ    AA              TEST FOR INQUIRY REQUEST          7  04047  J 01160 Q
1371               BBE    CK,TAD1,1                                        12  04054  W 03982 01001 1
1372       SUB-RTN 07.20
1373     CN        BBE    *&8,CQ&11,      SHOULD NOT BRANCH                12  04066  W 04085 04161
1374               B      CQ-19                                             7  04078  J 04131
1375               BBE    CO,TAD0,1                                        12  04085  W 04111 01000 1
1376               B      TYPE                                              7  04097  J 01029
1377               DCW    @#07.20@,G      BBE ALL-BITS VS NO-BITS           6  04109
1378     CO        BBE    CP,TAD2,1                                        12  04111  W 04130 01002 1
1379               B      *&2                                               7  04123  J 04131
1380     CP        H                                                        1  04130  .
1381               BNQ    AA              TEST FOR INQUIRY REQUEST          7  04131  J 01160 Q
1382               BBE    CN,TAD1,1                                        12  04138  W 04066 01001 1
1383       SUB-RTN 07.21
```

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
1384	CQ	BBE	*&8,CN&11,M G	SHOULD NOT BRANCH	12	04150	W 04169 04077 M G
1385		B	DA-19		7	04162	J 04215
1386		BBE	CR,TAD0,1		12	04169	W 04195 01000 1
1387		B	TYPE		7	04181	J 01029
1388		DCW	@#07.21@,G	BBE NO-BITS VS ALL BITS	6	04193	
1389	CR	BBE	CS,TAD2,1		12	04195	W 04214 01002 1
1390		B	*&2		7	04207	J 04215
1391	CS	H			1	04214	.
1392		BNQ	AA	TEST FOR INQUIRY REQUEST	7	04215	J 01160 Q
1393		BBE	CQ,TAD1,1		12	04222	W 04150 01001 1

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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1395       ROUTINE 08.00  CHECK OPERATION OF BRANCH ZONE & BRANCH WM/ZONE
1396
1397       SUB-RTN 08.01
1398     DA        BZN    DD-19,TPMK,       SHOULD BRANCH                  12  04234  V 04292 32957 2
1399               BBE    DB,TAD0,1                                        12  04246  W 04272 01000 1
1400               B      TYPE                                              7  04258  J 01029
1401               DCW    @#08.01@,G                                        6  04270
1402     DB        BBE    DC,TAD2,1                                        12  04272  W 04291 01002 1
1403               B      *&2                                               7  04284  J 04292
1404     DC        H                                                        1  04291  .
1405               BNQ    AA                TEST FOR INQUIRY REQUEST        7  04292  J 01160 Q
1406               BBE    DA,TAD1,1                                        12  04299  W 04234 01001 1
1407       SUB-RTN 08.02
1408     DD        BZN    *&8,QUOT,         SHOULD NOT BRANCH              12  04311  V 04330 32972 2
1409               B      DG-19                                             7  04323  J 04376
1410               BBE    DE,TAD0,1                                        12  04330  W 04356 01000 1
1411               B      TYPE                                              7  04342  J 01029
1412               DCW    @#08.02@,G                                        6  04354
1413     DE        BBE    DF,TAD2,1                                        12  04356  W 04375 01002 1
1414               B      *&2                                               7  04368  J 04376
1415     DF        H                                                        1  04375  .
1416               BNQ    AA                TEST FOR INQUIRY REQUEST        7  04376  J 01160 Q
1417               BBE    DD,TAD1,1                                        12  04383  W 04311 01001 1
1418       SUB-RTN 08.03
1419     DG        BZN    *&8,DELT,         SHOULD NOT BRANCH              12  04395  V 04414 32988 2
1420               B      DJ-19                                             7  04407  J 04460
1421               BBE    DH,TAD0,1                                        12  04414  W 04440 01000 1
1422               B      TYPE                                              7  04426  J 01029
1423               DCW    @#08.03@,G                                        6  04438
1424     DH        BBE    DI,TAD2,1                                        12  04440  W 04459 01002 1
1425               B      *&2                                               7  04452  J 04460
1426     DI        H                                                        1  04459  .
1427               BNQ    AA                TEST FOR INQUIRY REQUEST        7  04460  J 01160 Q
1428               BBE    DG,TAD1,1                                        12  04467  W 04395 01001 1
1429       SUB-RTN 08.04
1430     DJ        BZN    *&8,GPMK,         SHOULD NOT BRANCH              12  04479  V 04498 33004 2
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1431                 B      DM-19                             7  04491  J 04544
1432                 BBE    DK,TAD0,1                        12  04498  W 04524 01000 1
1433                 B      TYPE                              7  04510  J 01029
1434                 DCW    a#08.04a,G                        6  04522
1435      DK         BBE    DL,TAD2,1                        12  04524  W 04543 01002 1
1436                 B      *&2                               7  04536  J 04544
1437      DL         H                                        1  04543  .
1438                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  04544  J 01160 Q
1439                 BBE    DJ,TAD1,1                        12  04551  W 04479 01001 1
1440        SUB-RTN 08.05
1441      DM         BZN    DP-19,QUOT,*      SHOULD BRANCH  12  04563  V 04621 32972 S
1442                 BBE    DN,TAD0,1                        12  04575  W 04601 01000 1
1443                 B      TYPE                              7  04587  J 01029
1444                 DCW    a#08.05a,G                        6  04599
1445      DN         BBE    DO,TAD2,1                        12  04601  W 04620 01002 1
1446                 B      *&2                               7  04613  J 04621
1447      DO         H                                        1  04620  .
1448                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  04621  J 01160 Q
1449                 BBE    DM,TAD1,1                        12  04628  W 04563 01001 1
1450        SUB-RTN 08.06
1451      DP         BZN    *&8,TPMK,*    SHOULD NOT BRANCH  12  04640  V 04659 32957 S
1452                 B      DS-19                             7  04652  J 04705
1453                 BBE    DQ,TAD0,1                        12  04659  W 04685 01000 1
1454                 B      TYPE                              7  04671  J 01029
1455                 DCW    a#08.06a,G                        6  04683
1456      DQ         BBE    DR,TAD2,1                        12  04685  W 04704 01002 1
1457                 B      *&2                               7  04697  J 04705
1458      DR         H                                        1  04704  .
1459                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  04705  J 01160 Q
1460                 BBE    DP,TAD1,1                        12  04712  W 04640 01001 1
1461        SUB-RTN 08.07
1462      DS         BZN    *&8,DELT,*    SHOULD NOT BRANCH  12  04724  V 04743 32988 S
1463                 B      DV-19                             7  04736  J 04789
1464                 BBE    DT,TAD0,1                        12  04743  W 04769 01000 1
1465                 B      TYPE                              7  04755  J 01029
1466                 DCW    a#08.07a,G                        6  04767
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
1467	DT	BBE	DU,TA02,1		12	04769	W 04788 01002 1
1468		B	*&2		7	04781	J 04789
1469	DU	H			1	04788	.
1470		BNQ	AA	TEST FOR INQUIRY REQUEST	7	04789	J 01160 Q
1471		BBE	DS,TAD1,1		12	04796	W 04724 01001 1
1472	SUB-RTN 08.08						
1473	DV	BZN	*&8,GPMK,*	SHOULD NOT BRANCH	12	04808	V 04827 33004 S
1474		B	DY-19		7	04820	J 04873
1475		BBE	DW,TAD0,1		12	04827	W 04853 01000 1
1476		B	TYPE		7	04839	J 01029
1477		DCW	@#08.08@,G		6	04851	
1478	DW	BBE	DX,TAD2,1		12	04853	W 04872 01002 1
1479		B	*&2		7	04865	J 04873
1480	DX	H			1	04872	.
1481		BNQ	AA	TEST FOR INQUIRY REQUEST	7	04873	J 01160 Q
1482		BBE	DV,TAD1,1		12	04880	W 04808 01001 1
1483	SUB-RTN 08.09						
1484	DY	BZN	EB-19,DELT,-	SHOULD BRANCH	12	04892	V 04950 32988 K
1485		BBE	DZ,TAD0,1		12	04904	W 04930 01000 1
1486		B	TYPE		7	04916	J 01029
1487		DCW	@#08.09@,G		6	04928	
1488	DZ	BBE	EA,TAD2,1		12	04930	W 04949 01002 1
1489		B	*&2		7	04942	J 04950
1490	EA	H			1	04949	.
1491		BNQ	AA	TEST FOR INQUIRY REQUEST	7	04950	J 01160 Q
1492		BBE	DY,TAD1,1		12	04957	W 04892 01001 1
1493	SUB-RTN 08.10						
1494	EB	BZN	*&8,TPMK,-	SHOULD NOT BRANCH	12	04969	V 04988 32957 K
1495		B	EE-19		7	04981	J 05034
1496		BBE	EC,TAD0,1		12	04988	W 05014 01000 1
1497		B	TYPE		7	05000	J 01029
1498		DCW	@#08.10@,G		6	05012	
1499	EC	BBE	ED,TAD2,1		12	05014	W 05033 01002 1
1500		B	*&2		7	05026	J 05034
1501	ED	H			1	05033	.
1502		BNQ	AA	TEST FOR INQUIRY REQUEST	7	05034	J 01160 Q

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PGLIN    LABEL     OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION

1503               BBE    EB,TAD1,1                                  12  05041  W 04969 01001 1
1504       SUB-RTN 08.11
1505     EE        BZN    *&8,QUOT,-        SHOULD NOT BRANCH        12  05053  V 05072 32972 K
1506               B      EH-19                                       7  05065  J 05118
1507               BBE    EF,TA00,1                                  12  05072  W 05098 01000 1
1508               B      TYPE                                        7  05084  J 01029
1509               DCW    @#08.11@,G                                  6  05096
1510     EF        BBE    EG,TAD2,1                                  12  05098  W 05117 01002 1
1511               B      *&2                                         7  05110  J 05118
1512     EG        H                                                  1  05117  .
1513               BNQ    AA                TEST FOR INQUIRY REQUEST  7  05118  J 01160 Q
1514               BBE    EE,TA01,1                                  12  05125  W 05053 01001 1
1515       SUB-RTN 08.12
1516     EH        BZN    *&8,GPMK,-        SHOULD NOT BRANCH        12  05137  V 05156 33004 K
1517               B      EK-19                                       7  05149  J 05202
1518               BBE    EI,TA00,1                                  12  05156  W 05182 01000 1
1519               B      TYPE                                        7  05168  J 01029
1520               DCW    @#08.12@,G                                  6  05180
1521     EI        BBE    EJ,TA02,1                                  12  05182  W 05201 01002 1
1522               B      *&2                                         7  05194  J 05202
1523     EJ        H                                                  1  05201  .
1524               BNQ    AA                TEST FOR INQUIRY REQUEST  7  05202  J 01160 Q
1525               BBE    EH,TA01,1                                  12  05209  W 05137 01001 1
1526       SUB-RTN 08.13
1527     EK        BZN    EN-19,GPMK,&      SHOULD BRANCH            12  05221  V 05279 33004 B
1528               BBE    EL,TA00,1                                  12  05233  W 05259 01000 1
1529               B      TYPE                                        7  05245  J 01029
1530               DCW    @#08.13@,G                                  6  05257
1531     EL        BBE    EM,TAD2,1                                  12  05259  W 05278 01002 1
1532               B      *&2                                         7  05271  J 05279
1533     EM        H                                                  1  05278  .
1534               BNQ    AA                TEST FOR INQUIRY REQUEST  7  05279  J 01160 Q
1535               BBE    EK,TA01,1                                  12  05286  W 05221 01001 1
1536       SUB-RTN 08.14
1537     EN        BZN    *&8,TPMK,&        SHOULD NOT BRANCH        12  05298  V 05317 32957 B
1538               B      EQ-19                                       7  05310  J 05363
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1539               BBE    EO,TAD0,1                                        12  05317  W 05343 01000 1
1540               B      TYPE                                              7  05329  J 01029
1541               DCW    @#08.14@,G                                        6  05341
1542     EO        BBE    EP,TAD2,1                                        12  05343  W 05362 01002 1
1543               B      *&2                                               7  05355  J 05363
1544     EP        H                                                        1  05362  .
1545               BNQ    AA                TEST FOR INQUIRY REQUEST       7  05363  J 01160 Q
1546               BBE    EN,TAD1,1                                        12  05370  W 05298 01001 1
1547       SUB-RTN 08.15
1548     EQ        BZN    *&8,QUOT,&        SHOULD NOT BRANCH              12  05382  V 05401 32972 B
1549               B      ET-19                                             7  05394  J 05447
1550               BBE    ER,TAD0,1                                        12  05401  W 05427 01000 1
1551               B      TYPE                                              7  05413  J 01029
1552               DCW    @#08.15@,G                                        6  05425
1553     ER        BBE    ES,TAD2,1                                        12  05427  W 05446 01002 1
1554               B      *&2                                               7  05439  J 05447
1555     ES        H                                                        1  05446  .
1556               BNQ    AA                TEST FOR INQUIRY REQUEST       7  05447  J 01160 Q
1557               BBE    EQ,TAD1,1                                        12  05454  W 05382 01001 1
1558       SUB-RTN 08.16
1559     ET        BZN    *&8,DELT,&        SHOULD NOT BRANCH              12  05466  V 05485 32988 B
1560               B      EW-19                                             7  05478  J 05531
1561               BBE    EU,TAD0,1                                        12  05485  W 05511 01000 1
1562               B      TYPE                                              7  05497  J 01029
1563               DCW    @#08.16@,G                                        6  05509
1564     EU        BBE    EV,TAD2,1                                        12  05511  W 05530 01002 1
1565               B      *&2                                               7  05523  J 05531
1566     EV        H                                                        1  05530  .
1567               BNQ    AA                TEST FOR INQUIRY REQUEST       7  05531  J 01160 Q
1568               BBE    ET,TAD1,1                                        12  05538  W 05466 01001 1
1569       SUB-RTN 08.17
1570     EW        BWZ    *&8,GPMK,         SHOULD NOT BRANCH              12  05550  V 05569 33004 3
1571               B      EZ-19                                             7  05562  J 05615
1572               BBE    EX,TAD0,1                                        12  05569  W 05595 01000 1
1573               B      TYPE                                              7  05581  J 01029
1574               DCW    @#08.17@,G                                        6  05593
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PGLIN    LABEL     OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION

1575     EX        BBE    EY,TAD2,1                                  12  05595  W 05614 01002 1
1576               B      *&2                                         7  05607  J 05615
1577     EY        H                                                  1  05614  .
1578               BNQ    AA              TEST FOR INQUIRY REQUEST    7  05615  J 01160 Q
1579               BBE    EW,TAD1,1                                  12  05622  W 05550 01001 1
1580       SUB-RTN 0B.18
1581     EZ        BWZ                    OPCODE     . SHOULD         1  05634  V
1582               DC     EZ1             I-ADDRESS   . NOT           5  05639  05653
1583                      GMWM            B-ADDRESS    . BRANCH       5  05644  33011
1584                      @¤@             D-MODIFIER    .             1  05645
1585               B      FC-19                                       7  05646  J 05699
1586     EZ1       BBE    FA,TAD0,1                                  12  05653  W 05679 01000 1
1587               B      TYPE                                        7  05665  J 01029
1588               DCW    @#0B.18@,G                                  6  05677
1589     FA        BBE    FB,TAD2,1                                  12  05679  W 05698 01002 1
1590               B      *&2                                         7  05691  J 05699
1591     FB        H                                                  1  05698  .
1592               BNQ    AA              TEST FOR INQUIRY REQUEST    7  05699  J 01160 Q
1593               BBE    EZ,TAD1,1                                  12  05706  W 05634 01001 1
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PGLIN    LABEL      OPCOD  OPERAND                                                  CT  ADDRS  INSTRUCTION

1595       ROUTINE 09.00   CK INSTRUCTIONS ZERO-ADD, ZERO-SUBTRACT, BR ZERO
1596
1597       SUB-RTN 09.01
1598     FC         ZA     QMARK,WORK1        ATTEMPT TO TURN ON ZERO BAL INDR     11  05718  QM 05819 33563
1599                ZA     &8,WORK1           ATTEMPT TO TURN OFF ZERO BAL INDR    11  05729  QM 01289 33563
1600                BZ     *&8                SHOULD NOT BRANCH                     7  05740  J 05754 V
1601                B      QMARK-19                                                 7  05747  J 05800
1602                BBE    FD,TAD0,1                                               12  05754  W 05780 01000 1
1603                B      TYPE                                                     7  05766  J 01029
1604                DCW    @#09.01@,G                                               6  05778
1605     FD         BBE    FE,TAD2,1                                               12  05780  W 05799 01002 1
1606                B      *&2                                                      7  05792  J 05800
1607     FE         H                                                               1  05799  .
1608                BNQ    AA                 TEST FOR INQUIRY REQUEST              7  05800  J 01160 Q
1609                BBE    FC,TAD1,1                                               12  05807  W 05718 01001 1
1610       SUB-RTN 09.02
1611     QMARK      ZA     QMARK,WORK1        TURN ZERO BALANCE INDICATOR ON       11  05819  QM 05819 33563
1612                ZA     &8,WORK2            AND OFF                             11  05830  QM 01289 33564
1613                ZA     WORK1,WORK2          AND BACK ON AGAIN                  11  05841  QM 33563 33564
1614                BZ     FH-19              SHOULD BRANCH                         7  05852  J 05905 V
1615                BBE    FF,TAD0,1                                               12  05859  W 05885 01000 1
1616                B      TYPE                                                     7  05871  J 01029
1617                DCW    @#09.02@,G                                               6  05883
1618     FF         BBE    FG,TAD2,1                                               12  05885  W 05904 01002 1
1619                B      *&2                                                      7  05897  J 05905
1620     FG         H                                                               1  05904  .
1621                BNQ    AA                 TEST FOR INQUIRY REQUEST              7  05905  J 01160 Q
1622                BBE    QMARK,TAD1,1                                            12  05912  W 05819 01001 1
1623       SUB-RTN 09.03   CK ZERO-ADD FOR PROPER ZONE GENERATION
1624     FH         ZA     -8,WORK2                                                11  05924  QM 01290 33564
1625                ZA     &8,WORK2                                                11  05935  QM 01289 33564
1626                BZN    FK-19,WORK2,&      SHOULD BRANCH                        12  05946  V 06004 33564 B
1627                BBE    FI,TAD0,1                                               12  05958  W 05984 01000 1
1628                B      TYPE                                                     7  05970  J 01029
1629                DCW    @#09.03@,G                                               6  05982
1630     FI         BBE    FJ,TAD2,1                                               12  05984  W 06003 01002 1
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1631               B      *&2                                              7  05996  J 06004
1632     FJ        H                                                       1  06003  .
1633               BNQ    AA                TEST FOR INQUIRY REQUEST       7  06004  J 01160 Q
1634               BBE    FH,TAD1,1                                       12  06011  W 05924 01001 1
1635       SUB-RTN 09.04
1636     FK        ZA     -B,WORK2                                        11  06023  Q M 01290 33564
1637               BZN    FN-19,WORK2,-     SHOULD BRANCH                 12  06034  V 06092 33564 K
1638               BBE    FL,TAD0,1                                       12  06046  W 06072 01000 1
1639               B      TYPE                                             7  06058  J 01029
1640               DCW    @#09.04@,G                                       6  06070
1641     FL        BBE    FM,TAD2,1                                       12  06072  W 06091 01002 1
1642               B      *&2                                              7  06084  J 06092
1643     FM        H                                                       1  06091  .
1644               BNQ    AA                TEST FOR INQUIRY REQUEST       7  06092  J 01160 Q
1645               BBE    FK,TAD1,1                                       12  06099  W 06023 01001 1
1646       SUB-RTN 09.05
1647     FN        ZA     @Y@,WORK2         SHOULD TREAT Y AS PLUS 8       11  06111  Q M 01291 33564
1648               BZN    FQ-19,WORK2,&     SHOULD BRANCH                 12  06122  V 06180 33564 B
1649               BBE    FO,TAD0,1                                       12  06134  W 06160 01000 1
1650               B      TYPE                                             7  06146  J 01029
1651               DCW    @#09.05@,G                                       6  06158
1652     FO        BBE    FP,TAD2,1                                       12  06160  W 06179 01002 1
1653               B      *&2                                              7  06172  J 06180
1654     FP        H                                                       1  06179  .
1655               BNQ    AA                TEST FOR INQUIRY REQUEST       7  06180  J 01160 Q
1656               BBE    FN,TAD1,1                                       12  06187  W 06111 01001 1
1657       SUB-RTN 09.06
1658     FQ        ZA     -B,WORK2          SET SIGN NEGATIVE              11  06199  Q M 01290 33564
1659               ZA     @8@,WORK2         SHOULD TREAT NUMERIC 8 AS PLUS 8 11  06210  Q M 01292 33564
1660               BZN    FT-19,WORK2,&     SHOULD BRANCH                 12  06221  V 06279 33564 B
1661               BBE    FR,TAD0,1                                       12  06233  W 06259 01000 1
1662               B      TYPE                                             7  06245  J 01029
1663               DCW    @#09.06@,G                                       6  06257
1664     FR        BBE    FS,TAD2,1                                       12  06259  W 06278 01002 1
1665               B      *&2                                              7  06271  J 06279
1666     FS        H                                                       1  06278  .
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1667               BNQ    AA                TEST FOR INQUIRY REQUEST        7  06279  J 01160 Q
1668               BBE    FQ,TAD1,1                                        12  06286  W 06199 01001 1
1669       SUB-RTN 09.07  CHECK ZERO-SUBTRACT FOR PROPER ZONE GENERATION
1670     FT        ZS     &B,WORK2                                         11  06298  ⁝ 01289 33564
1671               BZN    FW-19,WORK2,-     SHOULD BRANCH                  12  06309  V 06367 33564 K
1672               BBE    FU,TAD0,1                                        12  06321  W 06347 01000 1
1673               B      TYPE                                              7  06333  J 01029
1674               DCW    @#09.07@,G                                        6  06345
1675     FU        BBE    FV,TAD2,1                                        12  06347  W 06366 01002 1
1676               B      *&2                                               7  06359  J 06367
1677     FV        H                                                        1  06366  .
1678               BNQ    AA                TEST FOR INQUIRY REQUEST        7  06367  J 01160 Q
1679               BBE    FT,TAD1,1                                        12  06374  W 06298 01001 1
1680       SUB-RTN 09.08
1681     FW        ZS     -8,WORK2                                         11  06386  ⁝ 01290 33564
1682               BZN    FZ-19,WORK2,&     SHOULD BRANCH                  12  06397  V 06455 33564 B
1683               BBE    FX,TAD0,1                                        12  06409  W 06435 01000 1
1684               B      TYPE                                              7  06421  J 01029
1685               DCW    @#09.08@,G                                        6  06433
1686     FX        BBE    FY,TAD2,1                                        12  06435  W 06454 01002 1
1687               B      *&2                                               7  06447  J 06455
1688     FY        H                                                        1  06454  .
1689               BNQ    AA                TEST FOR INQUIRY REQUEST        7  06455  J 01160 Q
1690               BBE    FW,TAD1,1                                        12  06462  W 06386 01001 1
1691       SUB-RTN 09.09
1692     FZ        ZS     @Y@,WORK2         SHOULD TREAT ALPHA Y AS PLUS 8  11  06474  ⁝ 01291 33564
1693               BZN    GC-19,WORK2,-     SHOULD BRANCH                  12  06485  V 06543 33564 K
1694               BBE    GA,TAD0,1                                        12  06497  W 06523 01000 1
1695               B      TYPE                                              7  06509  J 01029
1696               DCW    @#09.09@,G                                        6  06521
1697     GA        BBE    GB,TAD2,1                                        12  06523  W 06542 01002 1
1698               B      *&2                                               7  06535  J 06543
1699     GB        H                                                        1  06542  .
1700               BNQ    AA                TEST FOR INQUIRY REQUEST        7  06543  J 01160 Q
1701               BBE    FZ,TAD1,1                                        12  06550  W 06474 01001 1
1702       SUB-RTN 09.10
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PGLIN   LABEL    OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

1703    GC       ZS     -8,WORK2          SET SIGN POSITIVE      11  06562  ! 01290 33564
1704             ZS     @8@,WORK2         SHOULD TREAT NUMERIC 8 AS PLUS 8  11  06573  ! 01292 33564
1705             BZN    GF-19,WORK2,-     SHOULD BRANCH          12  06584  V 06642 33564 K
1706             BBE    GD,TAD0,1                                12  06596  W 06622 01000 1
1707             B      TYPE                                      7  06608  J 01029
1708             DCW    @#C9.10@,G                                6  06620
1709    GD       BBE    GE,TAD2,1                                12  06622  W 06641 01002 1
1710             B      *&2                                       7  06634  J 06642
1711    GE       H                                                1  06641  .
1712             BNQ    AA                TEST FOR INQUIRY REQUEST  7  06642  J 01160 Q
1713             BBE    GC,TAD1,1                                12  06649  W 06562 01001 1
1714      SUB-RTN 09.11  CK FOR HI-ORDER ZONE ELIMINATION
1715    GF       ZA     &8,WORK3-1                               11  06661  Q M 01289 33565
1716             ZA     WORK3-1,WORK3                            11  06672  Q M 33565 33566
1717             BZN    GI-19,WORK3-1,    SHOULD BRANCH, ZONE ELIMINATED  12  06683  V 06741 33565 2
1718             BBE    GG,TAD0,1                                12  06695  W 06721 01000 1
1719             B      TYPE                                      7  06707  J 01029
1720             DCW    @#C9.11@,G                                6  06719
1721    GG       BBE    GH,TAD2,1                                12  06721  W 06740 01002 1
1722             B      *&2                                       7  06733  J 06741
1723    GH       H                                                1  06740  .
1724             BNQ    AA                TEST FOR INQUIRY REQUEST  7  06741  J 01160 Q
1725             BBE    GF,TAD1,1                                12  06748  W 06661 01001 1
1726      SUB-RTN 09.12  CK FOR HI-ORDER ZERO GENERATION
1727    GI       ZS     &8,WORK3-1                               11  06760  ! 01289 33565
1728             ZS     WORK3-1,WORK3                            11  06771  ! 33565 33566
1729             ZS     WORK3-1           SINGLE-FIELD ARITH TEST FOR ZERO  6  06782  ! 33565
1730             BZ     GL-19             SHOULD BRANCH          7  06788  J 06841 V
1731             BBE    GJ,TAD0,1                                12  06795  W 06821 01000 1
1732             B      TYPE                                      7  06807  J 01029
1733             DCW    @#09.12@,G                                6  06819
1734    GJ       BBE    GK,TAD2,1                                12  06821  W 06840 01002 1
1735             B      *&2                                       7  06833  J 06841
1736    GK       H                                                1  06840  .
1737             BNQ    AA                TEST FOR INQUIRY REQUEST  7  06841  J 01160 Q
1738             BBE    GI,TAD1,1                                12  06848  W 06760 01001 1
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PGLIN    LABEL     OPCOD  OPERAND                                                  CT  ADDRS  INSTRUCTION

1739       SUB-RTN 09.13  CK ZERO-ADD & ZERO-SUBTRACT, SINGLE NUMERIC BIT
1740     GL        ZA     &6,WORK2                                                 11  06860  Q M 01293 33564
1741               ZA     -1,WORK2                                                 11  06871  Q M 01294 33564
1742               BBE    GM,WORK2,B S          SHOULD NOT BRANCH                  12  06882  W 06906 33564 B S
1743               BBE    GP-19,WORK2,1         SHOULD BRANCH                      12  06894  W 06952 33564 1
1744     GM        BBE    GN,TAD0,1                                                12  06906  W 06932 01000 1
1745               B      TYPE                                                      7  06918  J 01029
1746               DCW    @#09.13@,G                                                6  06930
1747     GN        BBE    GO,TAD2,1                                                12  06932  W 06951 01002 1
1748               B      *&2                                                       7  06944  J 06952
1749     GO        H                                                                1  06951  .
1750               BNQ    AA                    TEST FOR INQUIRY REQUEST           7  06952  J 01160 Q
1751               BBE    GL,TAD1,1                                                12  06959  W 06860 01001 1
1752       SUB-RTN 09.14
1753     GP        ZS     -9,WORK2                                                 11  06971  ! : 01295 33564
1754               ZS     &2,WORK2                                                 11  06982  ! : 01296 33564
1755               BBE    GQ,WORK2,W S          SHOULD NOT BRANCH                  12  06993  W 07017 33564 W S
1756               BBE    GT-19,WORK2,2         SHOULD BRANCH                      12  07005  W 07063 33564 2
1757     GQ        BBE    GR,TAD0,1                                                12  07017  W 07043 01000 1
1758               B      TYPE                                                      7  07029  J 01029
1759               DCW    @#C9.14@,G                                                6  07041
1760     GR        BBE    GS,TAD2,1                                                12  07043  W 07062 01002 1
1761               B      *&2                                                       7  07055  J 07063
1762     GS        H                                                                1  07062  .
1763               BNQ    AA                    TEST FOR INQUIRY REQUEST           7  07063  J 01160 Q
1764               BBE    GP,TAD1,1                                                12  07070  W 06971 01001 1
1765       SUB-RTN 09.15
1766     GT        ZA     &9,WORK2                                                 11  07082  Q M 01297 33564
1767               ZS     &4,WORK2                                                 11  07093  ! : 01298 33564
1768               BBE    GU,WORK2,,            SHOULD NOT BRANCH                  12  07104  W 07128 33564 ,
1769               BBE    GX-19,WORK2,4         SHOULD BRANCH                      12  07116  W 07174 33564 4
1770     GU        BBE    GV,TAD0,1                                                12  07128  W 07154 01000 1
1771               B      TYPE                                                      7  07140  J 01029
1772               DCW    @#09.15@,G                                                6  07152
1773     GV        BBE    GW,TAD2,1                                                12  07154  W 07173 01002 1
1774               B      *&2                                                       7  07166  J 07174
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PGLIN     LABEL      OPCOD  OPERAND                        CT  ADDRS  INSTRUCTION
1775      GW         H                                      1  07173  .
1776                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  07174  J 01160 Q
1777                 BBE    GT,TAD1,1                     12  07181  W 07082 01001 1
1778        SUB-RTN 09.16
1779      GX         ZS     -6,WORK2                      11  07193  .  01299 33564
1780                 ZA     -8,WORK2                      11  07204  M  01290 33564
1781                 BBE    GY,WORK2,X      SHOULD NOT BRANCH  12  07215  W 07239 33564 X
1782                 BBE    HA1-19,WORK2,8  SHOULD BRANCH   12  07227  W 07285 33564 8
1783      GY         BBE    GZ,TA00,1                     12  07239  W 07265 01000 1
1784                 B      TYPE                           7  07251  J 01029
1785                 OCW    @#09.16@,G                     6  07263
1786      GZ         BBE    HA,TA02,1                     12  07265  W 07284 01002 1
1787                 B      *&2                            7  07277  J 07285
1788      HA         H                                      1  07284  .
1789                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  07285  J 01160 Q
1790                 BBE    GX,TAD1,1                     12  07292  W 07193 01001 1
1791        SUB-RTN 09.17    TEST THAT ONLY ZERO TURNS ON ZERO BALANCE
1792      HA1        ZA     PLUS1,WORK2                   11  07304  M  33032 33564
1793                 BZ     HA2             * SHOULD       7  07315  J  07484 V
1794                 ZA     PLUS2,WORK2                   11  07322  M  33033 33564
1795                 BZ     HA2             * NOT          7  07333  J  07484 V
1796                 ZA     PLUS3,WORK2                   11  07340  M  33034 33564
1797                 BZ     HA2             * TAKE         7  07351  J  07484 V
1798                 ZA     PLUS4,WORK2                   11  07358  M  33035 33564
1799                 BZ     HA2             * ANY          7  07369  J  07484 V
1800                 ZA     PLUS5,WORK2                   11  07376  M  33036 33564
1801                 BZ     HA2             * OF           7  07387  J  07484 V
1802                 ZA     PLUS6,WORK2                   11  07394  M  33037 33564
1803                 BZ     HA2             * THESE        7  07405  J  07484 V
1804                 ZA     PLUS7,WORK2                   11  07412  M  33038 33564
1805                 BZ     HA2             * CONDITIONAL  7  07423  J  07484 V
1806                 ZA     PLUS8,WORK2                   11  07430  M  33039 33564
1807                 BZ     HA2             * BRANCH       7  07441  J  07484 V
1808                 ZA     PLUS9,WORK2                   11  07448  M  33040 33564
1809                 BZ     HA2             * INSTRUCTIONS 7  07459  J  07484 V
1810                 ZA     PLUS0,WORK2                   11  07466  M  33031 33564
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
1811		BZ	H8-19	SHOULD BRANCH & EXIT ROUTINE HERE	7	07477	J 07530 V
1812	HA2	BBE	HA3,TAD0,1		12	07484	W 07510 01000 1
1813		B	TYPE		7	07496	J 01029
1814		DCW	@#09.17@,G		6	07508	
1815	HA3	BBE	HA4,TAD2,1		12	07510	W 07529 01002 1
1816		B	*&2		7	07522	J 07530
1817	HA4	H			1	07529	.
1818		BNQ	AA	TEST FOR INQUIRY REQUEST	7	07530	J 01160 Q
1819		BBE	HA1,TAD1,1		12	07537	W 07304 01001 1

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PGLIN    LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

1821       ROUTINE 10.00  CHECK OPERATIONS ADD AND SUBTRACT
1822
1823       SUB-RTN 10.01  ADD ZERO TO ZERO
1824     HB          ZA    HB,WORK2                                 11  07549  Q M 07549 33564
1825                 A     HB,WORK2                                 11  07560  A 07549 33564
1826                 BZ    HC-19            SHOULD BRANCH           7  07571  J 07624 V
1827                 BBE   *&15,TAD0,1                              12  07578  W 07604 01000 1
1828                 B     TYPE                                     7  07590  J 01029
1829                 DCW   @#10.01@,G                               6  07602
1830                 BBE   *&8,TAD2,1                               12  07604  W 07623 01002 1
1831                 B     *&2                                      7  07616  J 07624
1832                 H                                              1  07623  .
1833                 BNQ   AA               TEST FOR INQUIRY REQUEST 7  07624  J 01160 Q
1834                 BBE   HB,TAD1,1                                12  07631  W 07549 01001 1
1835       SUB-RTN 10.02  ADD PLUS 1 TO MINUS 1
1836     HC          ZS    &1,WORK2                                 11  07643  ⋮ 01300 33564
1837                 A     &1,WORK2                                 11  07654  A 01300 33564
1838                 BZ    HD-19            SHOULD BRANCH           7  07665  J 07718 V
1839                 BBE   *&15,TAD0,1                              12  07672  W 07698 01000 1
1840                 B     TYPE                                     7  07684  J 01029
1841                 DCW   @#10.02@,G                               6  07696
1842                 BBE   *&8,TAD2,1                               12  07698  W 07717 01002 1
1843                 B     *&2                                      7  07710  J 07718
1844                 H                                              1  07717  .
1845                 BNQ   AA               TEST FOR INQUIRY REQUEST 7  07718  J 01160 Q
1846                 BBE   HC,TAD1,1                                12  07725  W 07643 01001 1
1847       SUB-RTN 10.03  ADD MINUS 2 TO PLUS 2
1848     HD          ZS    -2,WORK2                                 11  07737  ⋮ 01301 33564
1849                 A     -2,WORK2                                 11  07748  A 01301 33564
1850                 BZ    HE-19            SHOULD BRANCH           7  07759  J 07812 V
1851                 BBE   *&15,TAD0,1                              12  07766  W 07792 01000 1
1852                 B     TYPE                                     7  07778  J 01029
1853                 DCW   @#10.03@,G                               6  07790
1854                 BBE   *&8,TAD2,1                               12  07792  W 07811 01002 1
1855                 B     *&2                                      7  07804  J 07812
1856                 H                                              1  07811  .
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1857                BNQ    AA                TEST FOR INQUIRY REQUEST        7  07812  J 01160 Q
1858                BBE    HD,TAD1,1                                        12  07819  W 07737 01001 1
1859       SUB-RTN 10.04   ADD PLUS 4 TO MINUS 4
1860     HE         ZA     -4,WORK2                                         11  07831  Q M 01302 33564
1861                A      &4,WORK2                                         11  07842  A 01298 33564
1862                BZ     HF-19             SHOULD BRANCH                   7  07853  J 07906 V
1863                BBE    *&15,TAD0,1                                      12  07860  W 07886 01000 1
1864                B      TYPE                                             7  07872  J 01029
1865                DCW    @#10.04@,G                                       6  07884
1866                BBE    *&8,TAD2,1                                       12  07886  W 07905 01002 1
1867                B      *&2                                              7  07898  J 07906
1868                H                                                       1  07905  .
1869                BNQ    AA                TEST FOR INQUIRY REQUEST        7  07906  J 01160 Q
1870                BBE    HE,TAD1,1                                        12  07913  W 07831 01001 1
1871       SUB-RTN 10.05   ADD MINUS 8 TO PLUS 8
1872     HF         ZA     &8,WORK2                                         11  07925  Q M 01289 33564
1873                A      -8,WORK2                                         11  07936  A 01290 33564
1874                BZ     HG-19             SHOULD BRANCH                   7  07947  J 08000 V
1875                BBE    *&15,TAD0,1                                      12  07954  W 07980 01000 1
1876                B      TYPE                                             7  07966  J 01029
1877                DCW    @#10.05@,G                                       6  07978
1878                BBE    *&8,TAD2,1                                       12  07980  W 07999 01002 1
1879                B      *&2                                              7  07992  J 08000
1880                H                                                       1  07999  .
1881                BNQ    AA                TEST FOR INQUIRY REQUEST        7  08000  J 01160 Q
1882                BBE    HF,TAD1,1                                        12  08007  W 07925 01001 1
1883       SUB-RTN 10.06   SUBTRACT PLUS 1 FROM PLUS 1
1884     HG         ZA     &1,WORK2                                         11  08019  Q M 01300 33564
1885                S      &1,WORK2                                         11  08030  S 01300 33564
1886                BZ     HH-19             SHOULD BRANCH                   7  08041  J 08094 V
1887                BBE    *&15,TAD0,1                                      12  08048  W 08074 01000 1
1888                B      TYPE                                             7  08060  J 01029
1889                DCW    @#10.06@,G                                       6  08072
1890                BBE    *&8,TAD2,1                                       12  08074  W 08093 01002 1
1891                B      *&2                                              7  08086  J 08094
1892                H                                                       1  08093  .
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1893                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  08094  J 01160 Q
1894                BBE    HG,TAD1,1                                        12  08101  W 08019 01001 1
1895       SUB-RTN 10.07   SUBTRACT MINUS 2 FROM MINUS 2
1896     HH         ZS     &2,WORK2                                         11  08113  :. 01296 33564
1897                S      -2,WORK2                                         11  08124  S 01301 33564
1898                BZ     HI-19              SHOULD BRANCH                  7  08135  J 08188 V
1899                BBE    *&15,TAD0,1                                      12  08142  W 08168 01000 1
1900                B      TYPE                                             7  08154  J 01029
1901                DCW    @#10.07@,G                                       6  08166
1902                BBE    *&8,TAD2,1                                       12  08168  W 08187 01002 1
1903                B      *&2                                              7  08180  J 08188
1904                H                                                       1  08187  .
1905                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  08188  J 01160 Q
1906                BBE    HH,TAD1,1                                        12  08195  W 08113 01001 1
1907       SUB-RTN 10.08   SUBTRACT PLUS 4 FROM PLUS 4
1908     HI         ZS     -4,WORK2                                         11  08207  :. 01302 33564
1909                S      &4,WORK2                                         11  08218  S 01298 33564
1910                BZ     HJ-19              SHOULD BRANCH                  7  08229  J 08282 V
1911                BBE    *&15,TAD0,1                                      12  08236  W 08262 01000 1
1912                B      TYPE                                             7  08248  J 01029
1913                DCW    @#10.08@,G                                       6  08260
1914                BBE    *&8,TAD2,1                                       12  08262  W 08281 01002 1
1915                B      *&2                                              7  08274  J 08282
1916                H                                                       1  08281  .
1917                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  08282  J 01160 Q
1918                BBE    HI,TAD1,1                                        12  08289  W 08207 01001 1
1919       SUB-RTN 10.09   SUBTRACT MINUS 8 FROM MINUS 8
1920     HJ         ZA     -8,WORK2                                         11  08301  Q M 01290 33564
1921                S      -8,WORK2                                         11  08312  S 01290 33564
1922                BZ     HK-19              SHOULD BRANCH                  7  08323  J 08376 V
1923                BBE    *&15,TAD0,1                                      12  08330  W 08356 01000 1
1924                B      TYPE                                             7  08342  J 01029
1925                DCW    @#10.09@,G                                       6  08354
1926                BBE    *&8,TAD2,1                                       12  08356  W 08375 01002 1
1927                B      *&2                                              7  08368  J 08376
1928                H                                                       1  08375  .
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

1929                BNQ    AA                TEST FOR INQUIRY REQUEST        7  08376  J 01160 Q
1930                BBE    HJ,TAD1,1                                        12  08383  W 08301 01001 1
1931       SUB-RTN 10.10   CK ARITH OFLOW AND ZERO BALANCE
1932     HK         BAV    *&1               SHOULD RESET ARITH OFLOW, IF ON  7  08395  J 08402 Z
1933                BAV    HL                SHOULD NOT BRANCH                7  08402  J 08468 Z
1934                ZA     &5,WORK2                                         11  08409  Q M 01303 33564
1935                A      WORK2             DOUBLE WORK2 FOR OFLOW & ZERO BAL 6  08420  A 33564
1936                BZ     *&8               SHOULD BRANCH                    7  08426  J 08440 V
1937                B      HL                IF TAKEN, INDICATES NO ZERO BAL  7  08433  J 08468
1938                BAV    *&8               SHOULD BRANCH & RESET OFLOW      7  08440  J 08454 Z
1939                B      HL                IF TAKEN, INDICATES NO OFLOW     7  08447  J 08468
1940                BAV    *&8               SHOULD NOT BRANCH                7  08454  J 08468 Z
1941                B      HM-19                                            7  08461  J 08514
1942     HL         BBE    *&15,TAD0,1                                      12  08468  W 08494 01000 1
1943                B      TYPE                                             7  08480  J 01029
1944                DCW    @#10.10@,G                                       6  08492
1945                BBE    *&8,TAD2,1                                       12  08494  W 08513 01002 1
1946                B      *&2                                              7  08506  J 08514
1947                H                                                       1  08513  .
1948                BNQ    AA                TEST FOR INQUIRY REQUEST        7  08514  J 01160 Q
1949                BBE    HK,TAD1,1                                        12  08521  W 08395 01001 1
1950       SUB-RTN 10.11   CK ARITH OFLOW & NO ZERO BAL & NO DIGIT OFLOW
1951     HM         BAV    *&1                                              7  08533  J 08540 Z
1952                ZS     *-10,WORK1        SET WORK1 TO PLUS ZERO          11  08540  : 08540 33563
1953                ZS     &9,WORK2                                         11  08551  : 01297 33564
1954                S      &9,WORK2          SUB POS FROM NEG NO. FOR OFLOW  11  08562  S 01297 33564
1955                BAV    *&8               SHOULD BRANCH                    7  08573  J 08587 Z
1956                B      HN                IF TAKEN, INDICATES NO OFLOW     7  08580  J 08607
1957                BZ     HN                SHOULD NOT BRANCH                7  08587  J 08607 V
1958                ZA     WORK1             WORK1 SHOULD STILL BE ZERO       6  08594  Q M 33563
1959                BZ     HO-19             SHOULD BRANCH                    7  08600  J 08653 V
1960     HN         BBE    *&15,TAD0,1                                      12  08607  W 08633 01000 1
1961                B      TYPE                                             7  08619  J 01029
1962                DCW    @#10.11@,G                                       6  08631
1963                BBE    *&8,TAD2,1                                       12  08633  W 08652 01002 1
1964                B      *&2                                              7  08645  J 08653
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PGLIN    LABEL      OPCOD  OPERAND                                                CT  ADDRS  INSTRUCTION

1965                H                                                              1  08652  .
1966                BNQ    AA                  TEST FOR INQUIRY REQUEST            7  08653  J 01160 Q
1967                BBE    HM,TAD1,1                                              12  08660  W 08533 01001 1
1968       SUB-RTN 10.12   LONG ADD & SUBTRACT USING ALL DIGITS
1969     HO         ZS     &54321,WORK4-5      WORK4 SHOULD BE  5432J..... NOW    11  08672  : 01308 33571
1970                ZS     WORK4-5,WORK4       WORK4 SHOULD BE  000005432A NOW    11  08683  : 33571 33576
1971                A      &9876,WORK4-5       WORK4 SHOULD BE  098765432A NOW    11  08694  A 01312 33571
1972                A      &123,WORK4-5        WORK4 SHOULD BE  099995432A NOW    11  08705  A 01315 33571
1973                A      &45679,WORK4        WORK4 SHOULD BE  100000000& NOW    11  08716  A 01320 33576
1974                BZ     HP                  SHOULD NOT BRANCH                   7  08727  J 08836 V
1975                SW     WORK4-8                                                 6  08734  , 33568
1976                ZS     WORK4               TEST LOWER 9 POS OF WORK4 FOR ZRO   6  08740  : 33576
1977                CW     WORK4-8                                                 6  08746  ¤ 33568
1978                BZ     *&8                 SHOULD BRANCH                       7  08752  J 08766 V
1979                B      HP                                                      7  08759  J 08836
1980                S      &123,WORK4-5        WORK4 SHOULD BE  098770000- NOW    11  08766  S 01315 33571
1981                S      -45679,WORK4        WORK4 SHOULD BE  098765432J NOW    11  08777  S 01325 33576
1982                S      &9876,WORK4-5       WORK4 SHOULD BE  000005432J NOW    11  08788  S 01312 33571
1983                S      -54321,WORK4        WORK4 SHOULD BE  000000000- NOW    11  08799  S 01330 33576
1984                BZ     *&8                 SHOULD BRANCH                       7  08810  J 08824 V
1985                B      HP                                                      7  08817  J 08836
1986                BZN    HQ-19,WORK4,-       WILL BRANCH IF ZONED CORRECTLY     12  08824  V 08882 33576 K
1987     HP         BBE    *&15,TAD0,1      ** ANY #10.12 ERROR COMES HERE        12  08836  W 08862 01000 1
1988                B      TYPE                                                    7  08848  J 01029
1989                DCW    @#10.12@,G                                              6  08860
1990                BBE    *&8,TAD2,1                                             12  08862  W 08881 01002 1
1991                B      *&2                                                     7  08874  J 08882
1992                H                                                              1  08881  .
1993                BNQ    AA                  TEST FOR INQUIRY REQUEST            7  08882  J 01160 Q
1994                BBE    HO,TAD1,1                                              12  08889  W 08672 01001 1
1995       SUB-RTN 10.13   CK B-FIELD ZONE RETENTION & SIGN CHANGE
1996     HQ         SW     WORK5               PROTECT HI-ORDER FIELD OF WORK5     6  08901  , 33580
1997                ZA     -1,WORK5            INSURE ZONED NEGATIVELY            11  08907  Q M 01294 33580
1998                CW     WORK5               REMOVE WM                           6  08918  ¤ 33580
1999                S      WORK5               ZERO OUT WORK5 FIELD                6  08924  S 33580
2000                BZN    *&8,WORK5,-         . INSURE                           12  08930  V 08949 33580 K
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2001		B	HR	. THAT	7	08942	J 09116
2002		BZN	*&8,WORK5-1,*	. ZONES	12	08949	V 08968 33579 S
2003		B	HR	. ARE	7	08961	J 09116
2004		BZN	*&8,WORK5-2,	. RETAINED	12	08968	V 08987 33578 2
2005		B	HR	. FOLLOWING	7	08980	J 09116
2006		BZN	*&8,WORK5-3,&	. SINGLE-FIELD	12	08987	V 09006 33577 B
2007		B	HR	. SUBTRACT	7	08999	J 09116
2008		A	@9RIY@,WORK5		11	09006	A 01334 33580
2009		BZN	*&8,WORK5,&	. CHECK	12	09017	V 09036 33580 B
2010		B	HR	. SIGN	7	09029	J 09116
2011		BZN	*&8,WORK5-1,*	. CHANGE	12	09036	V 09055 33579 S
2012		B	HR	. AND	7	09048	J 09116
2013		BZN	*&8,WORK5-2,	. ZONE	12	09055	V 09074 33578 2
2014		B	HR	. RETENTION	7	09067	J 09116
2015		BZN	*&8,WORK5-3,&	. FOLLOWING	12	09074	V 09093 33577 B
2016		B	HR	. ADD	7	09086	J 09116
2017		S	FIVE9S-1,WORK5	SHOULD CHANGE SIGN BACK TO MINUS	11	09093	S 34007 33580
2018		BZN	HS-19,WORK5,-	SHOULD BRANCH	12	09104	V 09162 33580 K
2019	HR	BBE	*&15,TAD0,1	** ANY #10.13 ERROR COMES HERE	12	09116	W 09142 01000 1
2020		B	TYPE		7	09128	J 01029
2021		DCW	@#10.13@,G	. NOTE - THIS SUBROUTINE IS	6	09140	
2022		BBE	*&8,TAD2,1	. NOT SELF-RESTORING AND A	12	09142	W 09161 01002 1
2023		B	*&2	. ONE-TIME ERROR WILL PROBABLY	7	09154	J 09162
2024		H		. RESULT IN REPEATED FAILURES	1	09161	.
2025		BNQ	AA	TEST FOR INQUIRY REQUEST	7	09162	J 01160 Q
2026		BBE	HQ,TAD1,1		12	09169	W 08901 01001 1
2027	SUB-RTN 10.14		ARITHMETIC OPERATIONS ON SPECIAL CHARACTERS				
2028	HS	ZA	HS,WORK4	ZERO WORK4, INSURE NO HI-ORDER ZN	11	09181	Q M 09181 33576
2029		A	SPECL1,WORK4-1	ADD SPECIAL CHARS TO ZEROS	11	09192	A 33975 33575
2030		BBE	HT,WORK4-1,H	. SHOULD NOT	12	09203	W 09365 33575 H
2031		BBE	HT,WORK4-2,I	. TAKE	12	09215	W 09365 33574 I
2032		BBE	HT,WORK4-3,M Q	. ANY	12	09227	W 09365 33573 M Q
2033		BBE	HT,WORK4-4,.	. OF THESE	12	09239	W 09365 33572 .
2034		BBE	HT,WORK4-5,¤	. CONDITIONAL	12	09251	W 09365 33571 ¤
2035		BBE	HT,WORK4-6,E	. BRANCHES	12	09263	W 09365 33570 E
2036		S	&34567,WORK4-1		11	09275	S 01339 33575

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PGLIN    LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

2037               BZ     *&8              SHOULD BRANCH            7  09286  J 09300 V
2038               B      HT                                        7  09293  J 09365
2039               ZA     SPECL2,WORK4     TRY ZERO-ADD ON SPECIAL CHARS 11  09300  QM 33981 33576
2040               A      -34567,WORK4                              11  09311  A 01344 33576
2041               BZ     *&8              SHOULD BRANCH            7  09322  J 09336 V
2042               B      HT                                        7  09329  J 09365
2043               ZS     SPECL3,WORK4                              11  09336  .: 33987 33576
2044               S      SPECL4,WORK4                              11  09347  S 33993 33576
2045               BZ     HU-19            SHOULD BRANCH            7  09358  J 09411 V
2046     HT        BBE    *&15,TAD0,1                               12  09365  W 09391 01000 1
2047               B      TYPE                                      7  09377  J 01029
2048               DCW    @#10.14@,G                                6  09389
2049               BBE    *&8,TAD2,1                                12  09391  W 09410 01002 1
2050               B      *&2                                       7  09403  J 09411
2051               H                                                1  09410  .
2052               BNQ    AA               TEST FOR INQUIRY REQUEST 7  09411  J 01160 Q
2053               BBE    HS,TAD1,1                                 12  09418  W 09181 01001 1
2054       SUB-RTN 10.15  ARITH OPS WHEREIN A-FLD LENGTH EXCEEDS B-FLD
2055     HU        ZA     ALPHA,WORK3A     A-FLD LENGTH EXCEEDS B-FLD 11  09430  QM 01996 01999
2056               SAR    HOLDA1                                    7  09441  G 33949 A
2057               SBR    HOLDB1                                    7  09448  G 33954 B
2058               S      ALFADD,HOLDA1    CHECK PROPER STEPPING OF AAR 11  09455  S 33998 33949
2059               BZ     *&8              SHOULD BRANCH            7  09466  J 09480 V
2060               B      HV                                        7  09473  J 09662
2061               S      BETADD,HOLDB1    CHECK PROPER STEPPING OF BAR 11  09480  S 34003 33954
2062               BZ     *&8              SHOULD BRANCH            7  09491  J 09505 V
2063               B      HV                                        7  09498  J 09662
2064               S      ALPHA,WORK3A     A-FLD LENGTH EXCEEDS B-FLD 11  09505  S 01996 01999
2065               SAR    HOLDA1                                    7  09516  G 33949 A
2066               SBR    HOLDB1                                    7  09523  G 33954 B
2067               BZ     *&8              SHOULD BRANCH IF ZA & S PROPER 7  09530  J 09544 V
2068               B      HV                                        7  09537  J 09662
2069               S      ALFADD,HOLDA1    CHECK PROPER STEPPING OF AAR 11  09544  S 33998 33949
2070               BZ     *&8              SHOULD BRANCH            7  09555  J 09569 V
2071               B      HV                                        7  09562  J 09662
2072               S      BETADD,HOLDB1    CHECK PROPER STEPPING OF BAR 11  09569  S 34003 33954
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PGLIN   LABEL   OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2073            BZ     *&8                SHOULD BRANCH                  7  09580  J 09594 V
2074            B      HV                                                7  09587  J 09662
2075
2076              NOTE - IN ORDER TO CHECK A SPECIFIC CIRCUIT IN THE
2077                     7010 IT IS NECESSARY THAT THE A AND B FIELDS
2078                     OF THE FOLLOWING INSTRUCTION BE LOCATED AT
2079                     AN EVEN AND ODD ADDRESS, RESPECTIVELY
2080
2081            S      ALPHA,WORK3A       A-FLD EXCEEDS B-FLD, RECOMP REQD 11  09594  S 01996 01999
2082            SAR    HOLDA1                                            7  09605  G 33949 A
2083            SBR    HOLDB1                                            7  09612  G 33954 B
2084            S      ALFADD,HOLDA1      CHECK PROPER STEPPING OF AAR    11  09619  S 33998 33949
2085            BZ     *&8                SHOULD BRANCH                  7  09630  J 09644 V
2086            B      HV                                                7  09637  J 09662
2087            S      BETADD,HOLDB1      CHECK PROPER STEPPING OF BAR    11  09644  S 34003 33954
2088            BZ     HW-19              SHOULD BRANCH & EXIT ROUTINE HERE 7  09655  J 09708 V
2089    HV      BBE    *&15,TAD0,1        ANY #10.15 ERRORS COME HERE    12  09662  W 09688 01000 1
2090            B      TYPE                                              7  09674  J 01029
2091            DCW    @#10.15@,G                                        6  09686
2092            BBE    *&8,TAD2,1                                       12  09688  W 09707 01002 1
2093            B      *&2                                               7  09700  J 09708
2094            H                                                        1  09707  .
2095            BNQ    AA                 TEST FOR INQUIRY REQUEST       7  09708  J 01160 Q
2096            BBE    HU,TAD1,1                                        12  09715  W 09430 01001 1
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2098       ROUTINE 11.00  CHECK OPERATION CLEAR STORAGE
2099
2100       SUB-RTN 11.01  CK CS 00000 FOR NO ERR & PROPER SETTINGS AAR, BAR
2101     HW        CS     0                                                 6  09727  / 00000
2102               SAR    HOLDA1                                            7  09733  G 33949 A
2103               SBR    HOLDB1                                            7  09740  G 33954 B
2104               A      &0,HOLDA1          CHECK SETTING OF AAR          11  09747  A 01345 33949
2105               BZ     *&8                SHOULD BRANCH                  7  09758  J 09772 V
2106               B      HX                                                7  09765  J 09790
2107               S      FIVE9S,HOLDB1      CHECK SETTING OF BAR          11  09772  S 34008 33954
2108               BZ     HY-19              SHOULD BRANCH                  7  09783  J 09804 V
2109     HX        B      TYPCK                                             7  09790  J 01074
2110               DCW    @#11.01@,G                                        6  09802
2111               BNQ    AA                 TEST FOR INQUIRY REQUEST       7  09804  J 01160 Q
2112               BBE    HW,TAD1,1                                        12  09811  W 09727 01001 1
2113       SUB-RTN 11.02  CHECK PROPER OPERATION CLEAR STORAGE
2114     HY        CW     300                . INITIALIZE B-FIELD OF        6  09823  ¤ 00300
2115               SAR    HZ&10              . BBE INSTRUCTION WHICH FOLLOWS  7  09829  G 09979 A
2116               SW     201,251                                          11  09836  , 00201 00251
2117               CS     299                TRY TO CLEAR 00299 - 00200     6  09847  / 00299
2118               BW     JA,251             SHOULD NOT BRANCH             12  09853  V 10018 00251 1
2119               BW     JA,201             SHOULD NOT BRANCH             12  09865  V 10018 00201 1
2120               SW     200,301            PLACE TWO WORD MARKS          11  09877  , 00200 00301
2121               ZA     &7,200             PUT 8-A-4-2-1 BITS IN LOC 00200 11  09888  Q M 01346 00200
2122               ZA     &8,301                                           11  09899  Q M 01289 00301
2123               CW     301,300                                          11  09910  ¤ 00301 00300
2124               ZA     301,300            FILL 00200 - 00299 WITH EIGHTS 11  09921  Q M 00301 00300
2125               BBE    JA,200,G           G IS PLUS 7.  SHOULD NOT BRANCH 12  09932  W 10018 00200 G
2126               BBE    *&8,200,8          SHOULD BRANCH                 12  09944  W 09963 00200 8
2127               B      JA                                                7  09956  J 10018
2128               CS     299                TRY TO CLEAR THE EIGHTS        6  09963  / 00299
2129     HZ        BBE    JA,299,G M         BRANCH IF ANY BITS AT ALL     12  09969  W 10018 00299 G M
2130               BZ     JB-19              LEAVE ROUTINE HERE IF NO ERROR  7  09981  J 10032 V
2131               SW     HZ&9                                              6  09988  , 09978
2132               S      &1,HZ&10                                         11  09994  S 01300 09979
2133               CW     HZ&9                                              6  10005  ¤ 09978
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PGLIN   LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2134             B      HZ                                               7  10011  J 09969
2135    JA       B      TYPCK                                            7  10018  J 01074
2136             DCW    @#11.02@,G                                       6  10030
2137             BNQ    AA                 TEST FOR INQUIRY REQUEST      7  10032  J 01160 Q
2138             BBE    HY,TAD1,1                                       12  10039  W 09823 01001 1
2139
2140      SUB-RTN 11.03 CHECK CLEAR STORAGE & BRANCH
2141
2142    JB       SW     100                . PUT SOME DATA               6  10051  , 00100
2143             ZA     &7,100             . IN LOC 00100               11  10057  Q M 01346 00100
2144             CS     JD,100             CLEAR LOC 00100, SKIP NEXT INSTR 11  10068  / 10086 00100
2145    JC       B      JE                                               7  10079  J 10155
2146    JD       SAR    HOLDA1                                           7  10086  G 33949 A
2147             SBR    HOLDB1                                           7  10093  G 33954 B
2148             BBE    JE,100,G M         SHOULD NOT BRANCH            12  10100  W 10155 00100 G M
2149             S      &JD,HOLDA1                                      11  10112  S 01351 33949
2150             BZ     *&8                SHOULD BRANCH                 7  10123  J 10137 V
2151             B      JE                                               7  10130  J 10155
2152             S      &JC,HOLDB1                                      11  10137  S 01356 33954
2153             BZ     JF-19              SHOULD EXIT ROUTINE HERE      7  10148  J 10169 V
2154    JE       B      TYPCK                                            7  10155  J 01074
2155             DCW    @#11.03@,G                                       6  10167
2156             BNQ    AA                 TEST FOR INQUIRY REQUEST      7  10169  J 01160 Q
2157             BBE    JB,TAD1,1                                       12  10176  W 10051 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                        CT  ADDRS  INSTRUCTION
2159          ROUTINE 12.00  INITIALIZE PASS COUNT WORK AREA & LOCATION 00001
2160
2161      JF         NOPWM                                                  1  10188  N
2162                 B      *&18              SKIP NEXT TWO INSTRS WHEN SET 7  10189  J 10213
2163                 SW     *-12                                           6  10196  , 10189
2164                 ZA     PCC,PCCWK                                     11  10202  M 01010 01015
2165                 CS     99                                             6  10213  / 00099
2166                 SW     1,8                                           11  10219  , 00001 00008
2167                 A      &RESET,6                                      11  10230  A 01361 00006
2168                 S      &1,1                                          11  10241  S 01300 00001
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2170       ROUTINE 13.00  CHECK ADDRESSING BY INDEXING
2171
2172       SUB-RTN 13.01
2173     JG          SW    X1-4              WM OVER HI-ORDER DIGIT IX REG 1   6  10252  ,Q 00025
2174                 ZA    *,X1                                             11  10258  M 10268 00029
2175                 S     X1,0&X1           B-ADDR INDEXED BY IX REG 1       11  10269  S 00029 000*0
2176                 BZ    JH-19&X1          SHOULD BRANCH                     7  10280  J 103*1 V
2177                 B     TYPCK                                              7  10287  J 01074
2178                 DCW   @#13.01@,G                                         6  10299
2179                 BNQ   AA                TEST FOR INQUIRY REQUEST          7  10301  J 01160 Q
2180                 BBE   JG,TAD1,1                                         12  10308  W 10252 01001 1
2181       SUB-RTN 13.02
2182     JH          SW    X2-4                                               6  10320  ,Q 00030
2183                 ZA    *,X2                                             11  10326  M 10336 00034
2184                 S     X2,0&X2                                          11  10337  S 00034 000.0
2185                 BZ    JI-19&X2          SHOULD BRANCH                     7  10348  J 10309 V
2186                 B     TYPCK                                              7  10355  J 01074
2187                 DCW   @#13.02@,G                                         6  10367
2188                 BNQ   AA                TEST FOR INQUIRY REQUEST          7  10369  J 01160 Q
2189                 BBE   JH,TAD1,1                                         12  10376  W 10320 01001 1
2190       SUB-RTN 13.03
2191     JI          SW    X3-4                                               6  10388  ,Q 00035
2192                 ZA    *,X3                                             11  10394  M 10404 00039
2193                 S     X3,0&X3                                          11  10405  S 00039 000MQ0
2194                 BZ    JJ-19&X3          SHOULD BRANCH                     7  10416  J 104C7 V
2195                 B     TYPCK                                              7  10423  J 01074
2196                 DCW   @#13.03@,G                                         6  10435
2197                 BNQ   AA                TEST FOR INQUIRY REQUEST          7  10437  J 01160 Q
2198                 BBE   JI,TAD1,1                                         12  10444  W 10388 01001 1
2199       SUB-RTN 13.04
2200     JJ          SW    X4-4                                               6  10456  ,Q 00040
2201                 ZA    *,X4                                             11  10462  M 10472 00044
2202                 S     X4,0&X4                                          11  10473  S 00044 00*00
2203                 BZ    JK-19&X4          SHOULD BRANCH                     7  10484  J 10V05 V
2204                 B     TYPCK                                              7  10491  J 01074
2205                 DCW   @#13.04@,G                                         6  10503
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PGLIN    LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

2206                BNQ    AA              TEST FOR INQUIRY REQUEST  7  10505  J 01160 Q
2207                BBE    JJ,TAD1,1                                12  10512  W 10456 01001 1
2208       SUB-RTN 13.05
2209     JK         SW     X5-4                                      6  10524  , 00045
                                                                                Q
2210                ZA     *,X5                                     11  10530  M 10540 00049
2211                S      X5,0&X5                                  11  10541  S 00049 00**0
2212                BZ     JL-19&X5        SHOULD BRANCH             7  10552  J 10VX3 V
2213                B      TYPCK                                     7  10559  J 01074
2214                DCW    @#13.05@,G                                6  10571
2215                BNQ    AA              TEST FOR INQUIRY REQUEST  7  10573  J 01160 Q
2216                BBE    JK,TAD1,1                                12  10580  W 10524 01001 1
2217       SUB-RTN 13.06
2218     JL         SW     X6-4                                      6  10592  , 00050
                                                                                Q
2219                ZA     *,X6                                     11  10598  M 10608 00054
2220                S      X6,0&X6                                  11  10609  S 00054 00*.0
2221                BZ     JM-19&X6        SHOULD BRANCH             7  10620  J 10WM1 V
2222                B      TYPCK                                     7  10627  J 01074
2223                DCW    @#13.06@,G                                6  10639
2224                BNQ    AA              TEST FOR INQUIRY REQUEST  7  10641  J 01160 Q
2225                BBE    JL,TAD1,1                                12  10648  W 10592 01001 1
2226       SUB-RTN 13.07
2227     JM         SW     X7-4                                      6  10660  , 00055
                                                                                Q
2228                ZA     *,X7                                     11  10666  M 10676 00059
                                                                                          Q
2229                S      X7,0&X7                                  11  10677  S 00059 00*M0
                                                                                    Q
2230                BZ     JN-19&X7        SHOULD BRANCH             7  10688  J 10XM9 V
2231                B      TYPCK                                     7  10695  J 01074
2232                DCW    @#13.07@,G                                6  10707
2233                BNQ    AA              TEST FOR INQUIRY REQUEST  7  10709  J 01160 Q
2234                BBE    JM,TAD1,1                                12  10716  W 10660 01001 1
2235       SUB-RTN 13.08
2236     JN         SW     X8-4                                      6  10728  , 00060
                                                                                Q
2237                ZA     *,X8                                     11  10734  M 10744 00064
2238                S      X8,0&X8                                  11  10745  S 00064 00.00
2239                BZ     JP-19&X8        SHOULD BRANCH             7  10756  J 10P77 V
2240                B      TYPCK                                     7  10763  J 01074
2241                DCW    @#13.08@,G                                6  10775
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PGLIN   LABEL    OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

2242             BNQ    AA              TEST FOR INQUIRY REQUEST  7  10777  J 01160 Q
2243             BBE    JN,TAD1,1                                12  10784  W 10728 01001 1
2244      SUB-RTN 13.09
2245     JP      SW     X9-4                                      6  10796  , 00065
                                                                                Q
2246             ZA     *,X9                                     11  10802  M 10812 00069
2247             S      X9,0&X9                                  11  10813  S 00069 00.*0
                                                                                ,
2248             BZ     JQ-19&X9        SHOULD BRANCH             7  10824  J 10QU5 V
2249             B      TYPCK                                     7  10831  J 01074
2250             DCW    @#13.09@,G                                6  10843
2251             BNQ    AA              TEST FOR INQUIRY REQUEST  7  10845  J 01160 Q
2252             BBE    JP,TAD1,1                                12  10852  W 10796 01001 1
2253      SUB-RTN 13.10
2254     JQ      SW     X10-4                                     6  10864  , 00070
                                                                                Q
2255             ZA     *,X10                                    11  10870  M 10880 00074
                                                                                ,,
2256             S      X10,0&X10                                11  10881  S 00074 00..0
2257             BZ     JR-19&X10       SHOULD BRANCH             7  10892  J 10RJ3 V
2258             B      TYPCK                                     7  10899  J 01074
2259             DCW    @#13.10@,G                                6  10911
2260             BNQ    AA              TEST FOR INQUIRY REQUEST  7  10913  J 01160 Q
2261             BBE    JQ,TAD1,1                                12  10920  W 10864 01001 1
2262      SUB-RTN 13.11
2263     JR      SW     X11-4                                     6  10932  , 00075
                                                                                Q
2264             ZA     *,X11                                    11  10938  M 10948 00079
                                                                                ,Q
2265             S      X11,0&X11                                11  10949  S 00079 00.M0
2266             BZ     JS-19&X11       SHOULD BRANCH             7  10960  J 10RH1 V
2267             B      TYPCK                                     7  10967  J 01074
2268             DCW    @#13.11@,G                                6  10979
2269             BNQ    AA              TEST FOR INQUIRY REQUEST  7  10981  J 01160 Q
2270             BBE    JR,TAD1,1                                12  10988  W 10932 01001 1
2271      SUB-RTN 13.12
2272     JS      SW     X12-4                                     6  11000  , 00080
                                                                                Q
2273             ZA     *,X12                                    11  11006  M 11016 00084
                                                                                Q
2274             S      X12,0&X12                                11  11017  S 00084 00M00
                                                                                Q
2275             BZ     JT-19&X12       SHOULD BRANCH             7  11028  J 11M49 V
2276             B      TYPCK                                     7  11035  J 01074
2277             DCW    @#13.12@,G                                6  11047
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PGLIN   LABEL     OPCOD  OPERAND                                          CT  AODRS  INSTRUCTION

2278              BNQ    AA                TEST FOR INQUIRY REQUEST        7  11049  J 01160 Q
2279              BBE    JS,TAD1,1                                        12  11056  W 11000 01001 1
2280      SUB-RTN 13.13
2281    JT        SW     X13-4                                            6  11068  , 00085
                                                                                      Q
2282              ZA     *,X13                                            11  11074  M 11084 00089
                                                                                                Q
2283              S      X13,0&X13                                        11  11085  S 00089 00M*0
2284              BZ     JU-19&X13         SHOULD BRANCH                   7  11096  J 11A/7 V
2285              B      TYPCK                                            7  11103  J 01074
2286              DCW    @#13.13@,G                                       6  11115
2287              BNQ    AA                TEST FOR INQUIRY REQUEST        7  11117  J 01160 Q
2288              BBE    JT,TAD1,1                                        12  11124  W 11068 01001 1
2289      SUB-RTN 13.14
2290    JU        SW     X14-4                                            6  11136  , 00090
                                                                                      Q
2291              ZA     *,X14                                            11  11142  M 11152 00094
                                                                                                Q.
2292              S      X14,0&X14                                        11  11153  S 00094 00M.0
2293              BZ     JV-19&X14         SHOULD BRANCH                   7  11164  J 11AQ5 V
2294              B      TYPCK                                            7  11171  J 01074
2295              DCW    @#13.14@,G                                       6  11183
2296              BNQ    AA                TEST FOR INQUIRY REQUEST        7  11185  J 01160 Q
2297              BBE    JU,TAD1,1                                        12  11192  W 11136 01001 1
2298      SUB-RTN 13.15
2299    JV        SW     X15-4                                            6  11204  , 00095
                                                                                      Q
2300              ZA     *,X15                                            11  11210  M 11220 00099
                                                                                                QQ
2301              S      X15,0&X15                                        11  11221  S 00099 00MM0
2302              BZ     JW-19&X15         SHOULD BRANCH                   7  11232  J 11BE3 V
2303              B      TYPCK                                            7  11239  J 01074
2304              DCW    @#13.15@,G                                       6  11251
2305              BNQ    AA                TEST FOR INQUIRY REQUEST        7  11253  J 01160 Q
2306              BBE    JV,TAD1,1                                        12  11260  W 11204 01001 1
2307      SUB-RTN 13.16  A BIT MORE COMPLEX TEST OF INDEXED OPERATIONS
                                                                                      Q
2308    JW        ZA     &1,X15            INSURE X15 POSITIVE, ZERO BAL OFF 11  11272  M 01300 00099
2309              CS     0                 STEP BAR TO 99999               6  11283  / 00000
2310              SBR    X15               STORE BAR IN INDEX REG 15       7  11289  G 00099 B
                                                                                                QQ
2311              CS     1&X15             CLEAR LOC 00001 PLUS INDEX REG 15 6  11296  / 00MM1
2312              SAR    HOLDA1            SAVE A-ADDRESS REGISTER         7  11302  G 33949 A
2313              SBR    HOLDB1            SAVE B-ADDRESS REGISTER         7  11309  G 33954 B
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2314		BZ	JX	SHOULD NOT BRANCH	7	11316	J 11474 V
2315		S	X15,HOLDB1	TEST HOLDB1 AGAINST CONTENTS X15	11	11323	S 00099 33954
2316		BZ	*&8	SHOULD BRANCH	7	11334	J 11348 V
2317		B	JX		7	11341	J 11474
2318		A	&0,HOLDA1	TEST HOLDA1 FOR ZERO	11	11348	A 01345 33949
2319		BZ	*&8	SHOULD BRANCH	7	11359	J 11373 V
2320		B	JX		7	11366	J 11474
2321		ZS	&1,X15	INSURE X15 NEGATIVE, ZERO BAL OFF	11	11373	. 01300 00099
2322		CS	0	STEP BAR TO 99999	6	11384	/ 00000
2323		SBR	X15	STORE BAR IN INDEX REGISTER 15	7	11390	G 00099 B
2324		SBR	*&6	STORE BAR IN B-ADDR OF NEXT INSTR	7	11397	G 11409 B
2325		CS	0&X15	EFFECTIVE ADDRESS IS 00000	6	11404	/ 00MM0 QQ
2326		SAR	HOLDA1	SAVE A-ADDRESS REGISTER	7	11410	G 33949 A
2327		SBR	HOLDB1	SAVE B-ADDRESS REGISTER	7	11417	G 33954 B
2328		BZ	JX	SHOULD NOT BRANCH	7	11424	J 11474 V
2329		A	X15,HOLDB1		11	11431	A 00099 33954
2330		BZ	*&8	SHOULD BRANCH	7	11442	J 11456 V
2331		B	JX		7	11449	J 11474
2332		A	&0,HOLDA1		11	11456	A 01345 33949
2333		BZ	KF01-19	SHOULD BRANCH	7	11467	J 11488 V
2334	JX	B	TYPCK		7	11474	J 01074
2335		DCW	@#13.16@,G		6	11486	
2336		BNQ	AA	TEST FOR INQUIRY REQUEST	7	11488	J 01160 Q
2337		BBE	JW,TAD1,1		12	11495	W 11272 01001 1

```
PGLIN   LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2339      ROUTINE 15.00  CHECK OPERATION OF BRANCH CHARACTER EQUAL
2340
2341      SUB-RTN 15.01  COMPARE D-MOD 9 WITH B-FLD @ FOR LO COMPARE
2342                     AND NO BRANCH.  CHECK AAR & BAR SETTINGS
2343    KF01      BCE    KF02,ATSIGN,9      SHOULD NOT BRANCH             12  11507  B 11590 33027 9
2344              SAR    HOLDA2                                            7  11519  G 33949 A
2345              SBR    HOLDB2                                            7  11526  G 33954 B
2346              BL     *&B                SHOULD BRANCH                  7  11533  J 11547 T
2347              B      KF02                                              7  11540  J 11590
2348              S      &KF02,HOLDA2                                     11  11547  S 01366 33949
2349              BZ     *&8                SHOULD BRANCH                  7  11558  J 11572 V
2350              B      KF02                                              7  11565  J 11590
2351              S      &POUND,HOLDB2      ADDR OF POUND IS ADDR OF ATSIGN-1 11  11572  S 01371 33954
2352              BZ     KF03-19            SHOULD BRANCH                  7  11583  J 11604 V
2353    KF02      B      TYPCK                                             7  11590  J 01074
2354              DCW    @#15.01@,G                                        6  11602
2355              BNQ    AA                 TEST FOR INQUIRY REQUEST       7  11604  J 01160 Q
2356              BBE    KF01,TAD1,1                                      12  11611  W 11507 01001 1
2357      SUB-RTN 15.02  COMPARE D-MOD AT SIGN WITH B-FLD NINE
2358                     FOR HI COMPARE AND NO BRANCH.
2359    KF03      BCE    KF04,NINE,@        SHOULD NOT BRANCH             12  11623  B 11656 33069 @
2360              BH     *&B                SHOULD BRANCH                  7  11635  J 11649 U
2361              B      *&8                                               7  11642  J 11656
2362              BH     KF05-19            SHOULD STILL BRANCH            7  11649  J 11670 U
2363    KF04      B      TYPCK                                             7  11656  J 01074
2364              DCW    @#15.02@,G                                        6  11668
2365              BNQ    AA                 TEST FOR INQUIRY REQUEST       7  11670  J 01160 Q
2366              BBE    KF03,TAD1,1                                      12  11677  W 11623 01001 1
2367      SUB-RTN 15.03  COMPARE D-MOD AMPERSAND W/B-FLD AMPERSAND FOR
2368                     EQ COMPARE AND BRANCH.  CHECK AAR & BAR SETTINGS
2369    KF05      BCE    KF07,AMPSND,&      SHOULD BRANCH                 12  11689  B 11708 33012 &
2370    KF06      B      KF08                                              7  11701  J 11786
2371    KF07      SAR    HOLDA2                                            7  11708  G 33949 A
2372              SBR    HOLDB2                                            7  11715  G 33954 B
2373              BU     KF08               SHOULD NOT BRANCH              7  11722  J 11786 /
2374              BE     *&8                SHOULD BRANCH                  7  11729  J 11743 S
```

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2375		B	KF08		7	11736	J 11786
2376		S	&KF07,HOLDA2		11	11743	S 01376 33949
2377		BZ	*&8		7	11754	J 11768 V
2378		B	KF08		7	11761	J 11786
2379		S	&KF06,HOLDB2		11	11768	S 01381 33954
2380		BZ	KG-19	SHOULD BRANCH & EXIT ROUTINE HERE	7	11779	J 11800 V
2381	KF08	B	TYPCK		7	11786	J 01074
2382		DCW	@#15.03@,G		6	11798	
2383		BNQ	AA	TEST FOR INQUIRY REQUEST	7	11800	J 01160 Q
2384		BBE	KFC5,TAD1,1		12	11807	W 11689 01001 1

```
PGLIN   LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2386      ROUTINE 16.00  CHECK CERTAIN MOVE OPCODES PREPARATORY TO COMPARE
2387
2388      SUB-RTN 16.01  CHECK SCNLS FOR STEPPING AAR, BAR ONE POSITION
2389    KG        CS     103                                               6  11819  / 00103
2390              SCNLS  102,103                                          12  11825  D 00102 00103
2391              SAR    HOLDA2                                            7  11837  G 33949 A
2392              SBR    HOLD82                                            7  11844  G 33954 B
2393              S      @00101@,HOLDA2                                   11  11851  S 01386 33949
2394              BZ     *&8                SHOULD BRANCH                  7  11862  J 11876 V
2395              8      KH                                                7  11869  J 11894
2396              S      @00102@,HOLD82                                   11  11876  S 01391 33954
2397              BZ     KI-19                                             7  11887  J 11908 V
2398    KH        8      TYPCK                                             7  11894  J 01074
2399              DCW    @#16.01@,G                                        6  11906
2400              BNQ    AA                 TEST FOR INQUIRY REQUEST       7  11908  J 01160 Q
2401              BBE    KG,TAD1,1                                        12  11915  W 11819 01001 1
2402      SUB-RTN 16.02  CHECK MLNS FOR CORRECT OPERATION
2403    KI        CS     101                                               6  11927  / 00101
2404              SW     100                                               6  11933  , 00100
                                                                                      Q
2405              ZA     MINUS7,101         PUT 8-4-2-1 BITS IN LOC 00101  11  11939  M 33048 00101
2406              MLNS   WYE,101                                          12  11950  D 33058 00101 1
2407              BBE    KJ,101,X           SHOULD NOT BRANCH              12  11962  W 12017 00101 X
2408              BW     KJ,101             SHOULD NOT BRANCH              12  11974  V 12017 00101 1
2409              BBE    *&8,101,-          SHOULD BRANCH                  12  11986  W 12005 00101 -
2410              8      KJ                                                7  11998  J 12017
2411              BBE    KK-19,101,8        EXIT ROUTINE HERE              12  12005  W 12031 00101 8
2412    KJ        8      TYPCK                                             7  12017  J 01074
2413              DCW    @#16.02@,G                                        6  12029
2414              BNQ    AA                 TEST FOR INQUIRY REQUEST       7  12031  J 01160 Q
2415              BBE    KI,TAD1,1                                        12  12038  W 11927 01001 1
2416      SUB-RTN 16.03  CHECK MLZS FOR CORRECT OPERATION
2417    KK        CS     101                                               6  12050  / 00101
2418              SW     100                                               6  12056  , 00100
                                                                                      Q
2419              ZA     MINUS8,101         PUT 8-8 BITS IN LOC 00101      11  12062  M 33049 00101
2420              MLZS   EKS,101                                          12  12073  D 33057 00101 2
2421              BBE    KL,101,P           SHOULD NOT BRANCH              12  12085  W 12140 00101 P
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PGLIN     LABEL      OPCOD  OPERAND
2422                 BW     KL,101              SHOULD NOT BRANCH
2423                 BBE    *&8,101,8           SHOULD BRANCH
2424                 B      KL
2425                 BBE    KM-19,101,S8
2426      KL         B      TYPCK
2427                 DCW    @#16.03@,G
2428                 BNQ    AA                  TEST FOR INQUIRY REQUEST
2429                 BBE    KK,TA01,1
2430        SUB-RTN  16.04  CHECK MLCS FOR CORRECT OPERATION
2431      KM         CS     101
2432                 SW     100
2433                 ZA     MINUS0,101          PUT 8-8-2 BITS IN LOC 00101
2434                 MLCS   VEE,101
2435                 BW     KN,101              SHOULD NOT BRANCH
2436                 BBE    KN,101,*            SHOULD NOT BRANCH
2437                 BBE    *&8,101,1           SHOULD BRANCH
2438                 B      KN
2439                 BBE    *&8,101,4           SHOULD BRANCH
2440                 B      KN
2441                 BBE    KR-19,101,S8        SHOULD EXIT ROUTINE HERE
2442      KN         B      TYPCK
2443                 DCW    @#16.04@,G
2444                 BNQ    AA                  TEST FOR INQUIRY REQUEST
2445                 BBE    KM,TA01,1
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CT  ADORS  INSTRUCTION
12  12097  V 12140 00101 1
12  12109  W 12128 00101 8
 7  12121  J 12140
12  12128  W 12154 00101 S8
 7  12140  J 01074
 6  12152
 7  12154  J 01160 Q
12  12161  W 12050 01001 1
 6  12173  / 00101
 6  12179  , 00100
11  12185  M 33041 00101
12  12196  D 33055 00101 3
12  12208  V 12282 00101 1
12  12220  W 12282 00101 *
12  12232  W 12251 00101 1
 7  12244  J 12282
12  12251  W 12270 00101 4
 7  12263  J 12282
12  12270  W 12296 00101 S8
 7  12282  J 01074
 6  12294
 7  12296  J 01160 Q
12  12303  W 12173 01001 1
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2447       ROUTINE 17.00  CHECK COMPARE OPCOD USING SINGLE CHARACTERS
2448
2449                      THIS ROUTINE COMPARES ALL SIXTY-FOUR LEGITIMATE
2450                      CHARACTERS WITH ONE ANOTHER AND INSURES THAT ALL
2451                      IDENTICAL CHARACTERS COMPARE EQUAL, THAT NO
2452                      CHARACTER COMPARES EQUAL TO ANY CHARACTER EXCEPT
2453                      ITSELF, AND THAT THE COLLATING SEQUENCE IS PROPER
2454
2455                      BEGIN BY USING SIMPLEST COMPARISONS TO VERIFY
2456                      CORRECT OPERATION OF BRANCH HI, LO, EQ, UNEQUAL
2457
2458       SUB-RTN 17.01  COMPARE A-FLD 9 WITH B-FLD @ FOR LO COMPARE
2459     KR         C     NINE,ATSIGN                                      11  12315  C 33069 33027
2460                BE    KS                SHOULD NOT BRANCH               7  12326  J 12361 S
2461                BU    *&8               SHOULD BRANCH                   7  12333  J 12347 /
2462                B     KS                                                7  12340  J 12361
2463                BH    *&8               SHOULD NOT BRANCH               7  12347  J 12361 U
2464                BL    KT-19             SHOULD BRANCH                   7  12354  J 12375 T
2465     KS         B     TYPCK                                             7  12361  J 01074
2466                DCW   @#17.01@,G                                        6  12373
2467                BNQ   AA                TEST FOR INQUIRY REQUEST        7  12375  J 01160 Q
2468                BBE   KR,TAD1,1                                        12  12382  W 12315 01001 1
2469       SUB-RTN 17.02  COMPARE A-FLD @ WITH B-FLD 9 FOR HI COMPARE
2470     KT         C     ATSIGN,NINE                                      11  12394  C 33027 33069
2471                BE    KU                SHOULD NOT BRANCH               7  12405  J 12440 S
2472                BU    *&8               SHOULD BRANCH                   7  12412  J 12426 /
2473                B     KU                                                7  12419  J 12440
2474                BL    KU                SHOULD NOT BRANCH               7  12426  J 12440 T
2475                BH    KV-19             SHOULD BRANCH                   7  12433  J 12454 U
2476     KU         B     TYPCK                                             7  12440  J 01074
2477                DCW   @#17.02@,G                                        6  12452
2478                BNQ   AA                TEST FOR INQUIRY REQUEST        7  12454  J 01160 Q
2479                BBE   KT,TAD1,1                                        12  12461  W 12394 01001 1
2480       SUB-RTN 17.03  COMPARE AMPERSAND WITH AMPERSAND FOR EQ COMPARE
2481     KV         C     AMPSND,AMPSND                                    11  12473  C 33012 33012
2482                BU    KW                SHOULD                          7  12484  J 12512 /
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2483		BH	KW	NOT	7	12491	J 12512 U
2484		BL	KW	BRANCH	7	12498	J 12512 T
2485		BE	KX-19	SHOULD BRANCH	7	12505	J 12526 S
2486	KW	B	TYPCK		7	12512	J 01074
2487		DCW	@#17.03@,G		6	12524	
2488		BNQ	AA	TEST FOR INQUIRY REQUEST	7	12526	J 01160 Q
2489		BBE	KV,TAD1,1		12	12533	W 12473 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2491        ROUTINE 18.00   IF THE THREE ROUTINES #17.01 - #17.03 CAUSED NO
2492                        ERRORS, CORRECT OPERATION OF BU, BE, BH AND BL
2493                        IS NOW ASSUMED.  PROPER OPERATION OF THESE FOUR
2494                        CONDITIONAL BRANCHES IS A NECESSARY REQUIREMENT
2495                        FOR THE SUBROUTINE #18.01 WHICH FOLLOWS.
2496
2497                        MACHINES THAT DO NOT RECOGNIZE STANDARD COLLATING
2498                        SEQUENCE CAN BE EXPECTED TO GIVE ERRORS HERE.
2499
2500        SUB-RTN 18.01   COMPARE ALL 64 CHARS VS ALL 64 CHARS.  4096 TOTAL
2501
2502                        BECAUSE THE TIME REQUIRED TO PERFORM THIS ROUTINE
2503                        IS RELATIVELY LONG, IT IS DONE THE FIRST TIME
2504                        THROUGH C021B AND THEREAFTER ONLY WHEN THE
2505                        PASS COUNT CONSTANT WORK AREA IS REDUCED TO ZERO
2506
2507     KX         NOPWM                                                    1  12545  N
2508                B       KY                                               7  12546  J 13364
2509                ZA      &4096,LIMIT                                     11  12553  M 01395 34046
2510                CW      TYPESW&1                                         6  12564  ¤ 13034
2511                CW      X1,X2                                           11  12570  ¤ 00029 00034
2512                CW      X1-1,X2-1                                       11  12581  ¤ 00028 00033
2513                CW      X1-2,X2-2                                       11  12592  ¤ 00027 00032
2514                CW      X1-3,X2-3                                       11  12603  ¤ 00026 00031
2515                SW      X1-4,X2-4                                       11  12614  , 00025 00030
2516                SW      EQULSW&1,ANYERR&1  FORCE 1ST CMP EQ & INITIALIZATION 11  12625  , 12722 12703
2517                ZA      &64,X2                                          11  12636  M 01397 00034
2518                ZA      &63,HISTRT                                      11  12647  M 01399 34048
2519                ZA      &63,HICNT                                       11  12658  M 01399 34052
2520                ZA      &1,LOSTRT                                       11  12669  M 01300 34050
2521                ZA      &1,LOCNT                                        11  12680  M 01300 34054
2522     RETURN     ZA      &64,X1                                          11  12691  M 01397 00029
2523     ANYERR     NOPWM                                                    1  12702  N
2524                B       REINIT              BRANCH IF ANY PREVIOUS CMP ERROR 7  12703  J 13297
2525     COMPAR     C       TABLE-1&X1,TABLE-1&X2                           11  12710  C 330#5 330#5
2526     EQULSW     NOPWM                                                    1  12721  N
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2527		B	SBEQUL	BRANCH IF EQUAL EXPECTED	7	12722	J 12946
2528		BE	CMPERR		7	12729	J 13014 S
2529		DCW	@N5@		2	12737	
2530		BU	*&10		7	12738	J 12754 /
2531		B	CMPERR		7	12745	J 13014
2532		DCW	@N6@		2	12753	
2533	HILOSW	NOPWM			1	12754	N
2534		B	SBLO	BRANCH IF LO EXPECTED	7	12755	J 12854
2535		BL	CMPERR		7	12762	J 13014 T
2536		DCW	@N9@		2	12770	
2537		BH	*&10		7	12771	J 12787 U
2538		B	CMPERR		7	12778	J 13014
2539		DCW	@NX@		2	12786	
2540		B	COMMON-7		7	12787	J 13099
2541		S	&1,HICNT		11	12794	S 01300 34052
2542		BZ	*&8		7	12805	J 12819 V
2543		B	DIMIN		7	12812	J 13236
2544		SW	HILOSW&1		6	12819	, 12755
2545		S	&1,HISTRT		11	12825	S 01300 34048
2546		ZA	HISTRT,HICNT		11	12836	QM 34048 34052
2547		B	DIMIN		7	12847	J 13236
2548	SBLO	BH	CMPERR		7	12854	J 13014 U
2549		DCW	@N7@		2	12862	
2550		BL	*&10		7	12863	J 12879 T
2551		B	CMPERR		7	12870	J 13014
2552		OCW	@N8@		2	12878	
2553		B	COMMON-7		7	12879	J 13099
2554		S	&1,LOCNT		11	12886	S 01300 34054
2555		BZ	*&8		7	12897	J 12911 V
2556		B	DIMIN		7	12904	J 13236
2557		SW	EQULSW&1		6	12911	, 12722
2558		A	&1,LOSTRT		11	12917	A 01300 34050
2559		ZA	LOSTRT,LOCNT		11	12928	QM 34050 34054
2560		B	DIMIN		7	12939	J 13236
2561	SBEQUL	BU	CMPERR		7	12946	J 13014 /
2562		DCW	@N1@		2	12954	

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PGLIN   LABEL   OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2563            BH     CMPERR                                            7  12955  J 13014 U
2564            DCW    @N2@                                              2  12963
2565            BL     CMPERR                                            7  12964  J 13014 T
2566            DCW    @N3@                                              2  12972
2567            BE     *&10                                              7  12973  J 12989 S
2568            B      CMPERR                                            7  12980  J 13014
2569            DCW    @N4@                                              2  12988
2570            B      COMMON-7                                          7  12989  J 13099
2571            CW     EQULSW&1,HILOSW&1                                11  12996  ¤ 12722 12755
2572            B      DIMIN                                             7  13007  J 13236
2573
2574    CMPERR  SBR    X3                 SAVE RETURN ADDR & ERR IND IN X3  7  13014  G 00039 B
2575            BBE    OUT,TAD0,1         BRANCH IF TYPING NOT REQUIRED    12  13021  W 13086 01000 1
2576    TYPESW  NOPWM                     .                                 1  13033  N
2577            B      AROUND             . BRANCH TAKEN AFTER FIRST ERROR  7  13034  J 13061
2578            SW     *-12                                              6  13041  , 13034
2579            B      TYPE                                              7  13047  J 01029
2580            DCW    @#18.01@,G                                        6  13059
2581    AROUND  MLCS   1&X3,3&X4          WHERE X4 IS INITIALLY MESAG&9    12  13061  D 000M1 00*03 3
                                                                                      Q
2582            SBR    X4                 UPDATE X4                         7  13073  G 00044 B
2583            SW     ANYERR&1           INDICATE RE-INITIALIZING REQUIRED 6  13080  , 12703
2584    OUT     SW     COMMON&1           INDICATE ERROR OCCURRED           6  13086  , 13107
2585            B      2&X3               RETURN                            7  13092  J 000M2
                                                                                      Q
2586
2587            SBR    KX01&5                                            7  13099  G 13234 B
2588    COMMON  NOPWM                                                    1  13106  N
2589            B      *&8                BRANCH IF ANY COMPARE ERROR       7  13107  J 13121
2590            B      KX01-19                                           7  13114  J 13210
2591            CW     COMMON&1           RESTORE SWITCH TO NOP             6  13121  ¤ 13107
2592            BBE    MESAG&20,TAD0,1    BRANCH IF TYPING NOT REQUIRED    12  13127  W 13190 01000 1
2593            MLCS   TABLE-1&X1,MESAG&1 . MOVE CHARACTERS BEING COMPARED  12  13139  D 330*5 13171 3
2594            MLCS   TABLE-1&X2,MESAG&6 . TO ERROR MESSAGE                12  13151  D 330.5 13176 3
2595            B      TYPE                                              7  13163  J 01029
2596    MESAG   DCW    @ * VS * ERR * * * *@,G  * - FILLED IN BY ER ROUTINE 19  13170
2597            BBE    *&8,TAD2,1                                        12  13190  W 13209 01002 1
2598            B      *&2                                               7  13202  J 13210
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PGLIN   LABEL   OPCDD  OPERAND                                          CT  ADDRS  INSTRUCTION

2599            H                                                       1  13209  .
2600            BNQ    AA                TEST FOR INQUIRY REQUEST       7  13210  J 01160 Q
2601            BBE    ANYERR,TAD1,1                                   12  13217  W 12702 01001 1
2602    KX01    B      0                                                7  13229  J 00000
2603
2604    DIMIN   S      &1,LIMIT                                        11  13236  S 01300 34046
2605            BZ     KX02              FINISHED.  CLOSE UP THIS ROUTINE 7  13247  J 13358 V
2606            S      &1,X1                                           11  13254  S 01300 00029
2607            BZ     *&8                                              7  13265  J 13279 V
2608            B      ANYERR                                           7  13272  J 12702
2609            S      &1,X2                                           11  13279  S 01300 00034
2610            B      RETURN                                           7  13290  J 12691
2611
2612    REINIT  CW     ANYERR&1,MESAG&10 RESTORE SW, SET UP B-ADDR REG 11  13297  ¤ 12703 13180
2613            SBR    X4                INITIALIZE X4 TO MESAG&9       7  13308  G 00044 B
2614            MLCS   BLANK,MESAG&14    . BLANK OUT POSITIONS          12  13315  D 33006 13184 3
2615            MLCS   BLANK,MESAG&16    . WHICH MAY CONTAIN            12  13327  D 33006 13186 3
2616            MLCS   BLANK,MESAG&18    . ERROR NUMBERS                12  13339  D 33006 13188 3
2617            B      COMPAR            BACK TO COMPARE NEXT TWO CHARS  7  13351  J 12710
2618
2619    KX02    SW     KX&1                                             6  13358  , 12546
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2621       SUB-RTN 18.02  COMPARE TWO FIELDS, A LONGER THAN B, CK ADDR REGS
2622     KY        C      FIELD1,FIELD2                                    11  13364  C 34032 34035
2623               SAR    HOLDA2                                            7  13375  G 33949 A
2624               SBR    HOLDB2                                            7  13382  G 33954 B
2625               S      AADDR1,HOLDA2                                    11  13389  S 34013 33949
2626               BZ     *&8                SHOULD BRANCH                  7  13400  J 13414 V
2627               B      KZ                                                7  13407  J 13432
2628               S      BADDR1,HOLDB2                                    11  13414  S 34018 33954
2629               BZ     LA-19              SHOULD BRANCH                  7  13425  J 13446 V
2630     KZ        B      TYPCK                                             7  13432  J 01074
2631               DCW    @#18.02@,G                                        6  13444
2632               BNQ    AA                 TEST FOR INQUIRY REQUEST       7  13446  J 01160 Q
2633               BBE    KY,TAD1,1                                        12  13453  W 13364 01001 1
2634       SUB-RTN 18.03  COMPARE TWO FIELDS, A LONGER THAN B, CK RESULTS
2635     LA        C      FIELD1,FIELD2      SHOULD BE LO COMPARISON        11  13465  C 34032 34035
2636               BE     *&15                                              7  13476  J 13497 S
2637               BH     *&8                                               7  13483  J 13497 U
2638               BL     LB-19                                             7  13490  J 13511 T
2639               B      TYPCK                                             7  13497  J 01074
2640               DCW    @#18.03@,G                                        6  13509
2641               BNQ    AA                 TEST FOR INQUIRY REQUEST       7  13511  J 01160 Q
2642               BBE    LA,TAD1,1                                        12  13518  W 13465 01001 1
2643       SUB-RTN 18.04  COMPARE TWO FIELDS, B LONGER THAN A, CK ADDR REGS
2644     LB        C      FIELD3,FIELD4                                    11  13530  C 34038 34042
2645               SAR    HOLDA2                                            7  13541  G 33949 A
2646               SBR    HOLDB2                                            7  13548  G 33954 B
2647               S      AADDR2,HOLDA2                                    11  13555  S 34023 33949
2648               BZ     *&8                                               7  13566  J 13580 V
2649               B      LC                                                7  13573  J 13598
2650               S      BADDR2,HOLDB2                                    11  13580  S 34028 33954
2651               BZ     LD-19                                             7  13591  J 13612 V
2652     LC        B      TYPCK                                             7  13598  J 01074
2653               DCW    @#18.04@,G                                        6  13610
2654               BNQ    AA                 TEST FOR INQUIRY REQUEST       7  13612  J 01160 Q
2655               BBE    LB,TAD1,1                                        12  13619  W 13530 01001 1
2656       SUB-RTN 18.05  COMPARE TWO FIELDS, B LONGER THAN A, CK RESULTS
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PGLIN    LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

2657     LD        C      FIELD3,FIELD4     SHOULD BE HI COMPARISON  11  13631  C 34038 34042
2658               BE     *&15                                        7  13642  J 13663 S
2659               BL     *&8                                         7  13649  J 13663 T
2660               BH     LE-19             SHOULD BRANCH HIGH        7  13656  J 13677 U
2661               B      TYPCK                                       7  13663  J 01074
2662               DCW    @#18.05@,G                                  6  13675
2663               BNQ    AA                TEST FOR INQUIRY REQUEST  7  13677  J 01160 Q
2664               BBE    LD,TAD1,1                                  12  13684  W 13631 01001 1
2665       SUB-RTN 18.06  PERFORM COMPLICATED COMPARE
2666     LE        C      CCON1,CCON2       REQUIRE HI & LO TO ALT W/EACH CYC 11  13696  C 34281 34346
2667               BH     *&8               SHOULD BRANCH             7  13707  J 13721 U
2668               B      LF                                          7  13714  J 13739
2669               C      CCON2,CCON1                                11  13721  C 34346 34281
2670               BL     LK-19             SHOULD BRANCH & EXIT ROUTINE HERE 7  13732  J 13753 T
2671     LF        B      TYPCK                                       7  13739  J 01074
2672               DCW    @#18.06@,G                                  6  13751
2673               BNQ    AA                TEST FOR INQUIRY REQUEST  7  13753  J 01160 Q
2674               BBE    LE,TAD1,1                                  12  13760  W 13696 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION
2676        ROUTINE 19.00   CHECK OPERATION OF DATA MOVE INSTRUCTION
2677
2678        SUB-RTN 19.01   CHECK SCNLS FOR MOVE NO DATA
2679      LK        MLCS    NWM63,WORK6                                12  13772  D 33004 33581 3
2680                SW      WORK6                                       6  13784  , 33581
2681                SCNLS   NWM00,WORK6                                12  13790  D 32942 33581
2682                C       ALLBIT,WORK6                               11  13802  C 33011 33581
2683                BE      LL-19                                       7  13813  J 13834 S
2684                B       TYPCK                                       7  13820  J 01074
2685                DCW     @#19.01@,G                                  6  13832
2686                BNQ     AA                 TEST FOR INQUIRY REQUEST 7  13834  J 01160 Q
2687                BBE     LK,TAD1,1                                  12  13841  W 13772 01001 1
2688        SUB-RTN 19.02   CHECK MLNS FOR MOVE NUMERIC, NO ZONES, NO WM
2689      LL        MLCS    NWM62,WORK6                                12  13853  D 33003 33581 3
2690                SW      WORK6                                       6  13865  , 33581
2691                MLNS    NWM01,WORK6                                12  13871  D 32943 33581 1
2692                C       AYE,WORK6                                  11  13883  C 33032 33581
2693                BE      LM-19                                       7  13894  J 13915 S
2694                B       TYPCK                                       7  13901  J 01074
2695                DCW     @#19.02@,G                                  6  13913
2696                BNQ     AA                 TEST FOR INQUIRY REQUEST 7  13915  J 01160 Q
2697                BBE     LL,TAD1,1                                  12  13922  W 13853 01001 1
2698        SUB-RTN 19.03   CHECK MLZS FOR MOVE ZONES, NO NUMERIC, NO WM
2699      LM        MLCS    NWM31,WORK6                                12  13934  D 32972 33581 3
2700                SW      WORK6                                       6  13946  , 33581
2701                MLZS    NWM32,WORK6                                12  13952  D 32973 33581 2
2702                C       DELTA,WORK6                                11  13964  C 33017 33581
2703                BE      LN-19                                       7  13975  J 13996 S
2704                B       TYPCK                                       7  13982  J 01074
2705                DCW     @#19.03@,G                                  6  13994
2706                BNQ     AA                 TEST FOR INQUIRY REQUEST 7  13996  J 01160 Q
2707                BBE     LM,TAD1,1                                  12  14003  W 13934 01001 1
2708        SUB-RTN 19.04   CHECK MLCS FOR MOVE NUMERIC, ZONE, NO WM
2709      LN        MLNS    NWM25,WORK6                                12  14015  D 32967 33581 1
2710                MLZS    NWM25,WORK6                                12  14027  D 32967 33581 2
2711                SW      WORK6                                       6  14039  , 33581
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PGLIN    LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

2712                MLCS   NWM38,WORK6                              12  14045  D 32979 33581 3
2713                C      OH,WORK6                                 11  14057  C 33047 33581
2714                BE     LP-19                                     7  14068  J 14089 S
2715                B      TYPCK                                     7  14075  J 01074
2716                DCW    @#19.04@,G                                6  14087
2717                BNQ    AA                TEST FOR INQUIRY REQUEST 7  14089  J 01160 Q
2718                BBE    LN,TAD1,1                                12  14096  W 14015 01001 1
2719      SUB-RTN 19.05    CHECK MLWS FOR MOVE WM, NO ZONE, NO NUMERIC
2720     LP         MLCS   NWM63,WORK6                              12  14108  D 33004 33581 3
2721                CW     WORK6                                     6  14120  ¤ 33581
2722                MLWS   BLANK,WORK6                              12  14126  D 33006 33581 4
2723                C      ALLBIT,WORK6                             11  14138  C 33011 33581
2724                BE     LQ-19                                     7  14149  J 14170 S
2725                B      TYPCK                                     7  14156  J 01074
2726                DCW    @#19.05@,G                                6  14168
2727                BNQ    AA                TEST FOR INQUIRY REQUEST 7  14170  J 01160 Q
2728                BBE    LP,TAD1,1                                12  14177  W 14108 01001 1
2729      SUB-RTN 19.06    CHECK MLNWS FOR MOVE NUMERIC, WM, NO ZONE
2730     LQ         MLCS   NWM54,WORK6                              12  14189  D 32995 33581 3
2731                CW     WORK6                                     6  14201  ¤ 33581
2732                MLNWS  NINE,WORK6                               12  14207  D 33069 33581 5
2733                C      EYE,WORK6                                11  14219  C 33040 33581
2734                BE     LR-19                                     7  14230  J 14251 S
2735                B      TYPCK                                     7  14237  J 01074
2736                DCW    @#19.06@,G                                6  14249
2737                BNQ    AA                TEST FOR INQUIRY REQUEST 7  14251  J 01160 Q
2738                BBE    LQ,TAD1,1                                12  14258  W 14189 01001 1
2739      SUB-RTN 19.07    CHECK MLZWS FOR MOVE ZONE, WM, NO NUMERIC
2740     LR         MLCS   NWM31,WORK6                              12  14270  D 32972 33581 3
2741                CW     WORK6                                     6  14282  ¤ 33581
2742                MLZWS  DASH,WORK6                               12  14288  D 33018 33581 6
2743                C      DELTA,WORK6                              11  14300  C 33017 33581
2744                BE     LS-19                                     7  14311  J 14332 S
2745                B      TYPCK                                     7  14318  J 01074
2746                DCW    @#19.07@,G                                6  14330
2747                BNQ    AA                TEST FOR INQUIRY REQUEST 7  14332  J 01160 Q
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PGLIN    LABEL      OPCOD  OPERAND                                                  CT  ADDRS  INSTRUCTION

2748                BBE    LR,TAD1,1                                                12  14339  W 14270 01001 1
2749       SUB-RTN 19.08   CHECK MLCWS FOR MOVE CHARACTER AND WORD MARK
2750     LS         MLCS   NWM00,WORK6                                              12  14351  D 32942 33581 3
2751                CW     WORK6                                                    6  14363  ¤ 33581
2752                MLCWS  ALLBIT,WORK6                                             12  14369  D 33011 33581 7
2753                C      ALLBIT,WORK6                                             11  14381  C 33011 33581
2754                BE     LT-19                                                    7  14392  J 14413 S
2755                B      TYPCK                                                    7  14399  J 01074
2756                OCW    @#19.08@,G                                               6  14411
2757                BNQ    AA                  TEST FOR INQUIRY REQUEST             7  14413  J 01160 Q
2758                BBE    LS,TA01,1                                                12  14420  W 14351 01001 1
2759       SUB-RTN 19.09   CHECK SCNR FOR MOVE NO DATA, PROPER AOOR REG STEP
2760     LT         MLCWS  NWM63,100                                                12  14432  D 33004 00100 7
2761                MLCWS  BLANK,101                                                12  14444  D 33006 00101 7
2762                SCNR   10C,101                                                  12  14456  D 00100 00101 8
2763                SAR    HOLOA2                                                   7  14468  G 33949 A
2764                SBR    HOLDB2                                                   7  14475  G 33954 B
2765                C      HOLOA2,@00101@      CK AAR FOR PROPER STEPPING           11  14482  C 33949 01386
2766                BU     LU                  SHOULO NOT BRANCH                    7  14493  J 14598 /
2767                C      HOLOB2,@00102@      CK BAR FOR PROPER STEPPING           11  14500  C 33954 01391
2768                BU     LU                  SHOULO NOT BRANCH                    7  14511  J 14598 /
2769                C      BLANK,101           TEST LOC 00101 FOR WM-BLANK          11  14518  C 33006 00101
2770                BU     LU                  SHOULD NOT BRANCH                    7  14529  J 14598 /
2771                SCNR   101,100                                                  12  14536  D 00101 00100 8
2772                SAR    HOLOA2                                                   7  14548  G 33949 A
2773                SBR    HOLDB2                                                   7  14555  G 33954 B
2774                C      HOLDA2,@00102@      CK AAR FOR PROPER STEPPING           11  14562  C 33949 01391
2775                BU     LU                  SHOULO NOT BRANCH                    7  14573  J 14598 /
2776                C      HOLOB2,@00101@      CK BAR FOR PROPER STEPPING           11  14580  C 33954 01386
2777                BE     LV-19               SHOULO BRANCH & EXIT ROUTINE HERE    7  14591  J 14612 S
2778     LU         B      TYPCK             ** ALL #19.09 ERRORS COME HERE         7  14598  J 01074
2779                OCW    @#19.09@,G                                               6  14610
2780                BNQ    AA                  TEST FOR INQUIRY REQUEST             7  14612  J 01160 Q
2781                BBE    LT,TAD1,1                                                12  14619  W 14432 01001 1
2782       SUB-RTN 19.10   CHECK MRN SIMILAR TO MLNS
2783     LV         MLCWS  NWM50,WORK6                                              12  14631  D 32991 33581 7
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2784		MRN	COLON,WORK6		12	14643	D 33028 33581 9
2785		BW	*&13,WORK6	SHOULD NOT BRANCH	12	14655	V 14679 33581 1
2786		BCE	LW-19,WORK6,B	SHOULD BRANCH	12	14667	B 14693 33581 LB
2787		B	TYPCK		7	14679	J 01074
2788		DCW	@#19.10@,G		6	14691	
2789		BNQ	AA	TEST FOR INQUIRY REQUEST	7	14693	J 01160 Q
2790		B8E	LV,TAD1,1		12	14700	W 14631 01001 1
2791	SUB-RTN 19.11		CHECK MRZ				
2792	LW	MLCWS	NWM47,WORK6		12	14712	D 32988 33581 7
2793		MRZ	SUBLNK,WORK6		12	14724	D 33025 33581 0
2794		BW	*&13,WORK6	SHOULD NOT BRANCH	12	14736	V 14760 33581 1
2795		BCE	LX-19,WORK6,M	SHOULD BRANCH	12	14748	B 14774 33581 SM
2796		B	TYPCK		7	14760	J 01074
2797		DCW	@#19.11@,G		6	14772	
2798		BNQ	AA	TEST FOR INQUIRY REQUEST	7	14774	J 01160 Q
2799		B8E	LW,TAD1,1		12	14781	W 14712 01001 1
2800	SUB-RTN 19.12		CHECK MRC				
2801	LX	MLCWS	NWM12,WORK6		12	14793	D 32954 33581 7
2802		MRC	SEE,WORK6		12	14805	D 33034 33581 #
2803		BW	*&13,WORK6	SHOULD NOT BRANCH	12	14817	V 14841 33581 1
2804		BCE	LY-19,WORK6,C	SHOULD BRANCH	12	14829	B 14855 33581 C
2805		B	TYPCK		7	14841	J 01074
2806		DCW	@#19.12@,G		6	14853	
2807		BNQ	AA	TEST FOR INQUIRY REQUEST	7	14855	J 01160 Q
2808		B8E	LX,TAD1,1		12	14862	W 14793 01001 1
2809	SUB-RTN 19.13		CHECK MRW				
2810	LY	MLCWS	ALLBIT,WORK6		12	14874	D 33011 33581 7
2811		MRW	NWM00,WORK6		12	14886	D 32942 33581 @
2812		BW	*&13,WORK6	SHOULD NOT BRANCH	12	14898	V 14922 33581 1
2813		BCE	LZ-19,WORK6,M	SHOULD BRANCH	12	14910	B 14936 33581 GM
2814		B	TYPCK		7	14922	J 01074
2815		DCW	@#19.13@,G		6	14934	
2816		BNQ	AA	TEST FOR INQUIRY REQUEST	7	14936	J 01160 Q
2817		B8E	LY,TAD1,1		12	14943	W 14874 01001 1
2818	SUB-RTN 19.14		CHECK MRNW				
2819	LZ	MLCWS	QUESTN,WORK6		12	14955	D 33031 33581 7

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2820		MRNW	NWM05,WORK6		12	14967	D 32947 33581 :
2821		BW	*&13,WORK6	SHOULD NOT BRANCH	12	14979	V 15003 33581 1
2822		BCE	MA-19,WORK6,E	SHOULD BRANCH	12	14991	B 15017 33581 E
2823		B	TYPCK		7	15003	J 01074
2824		DCW	@#19.14@,G		6	15015	
2825		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15017	J 01160 Q
2826		BBE	LZ,TAD1,1		12	15024	W 14955 01001 1
2827	SUB-RTN	19.15	CHECK MRZW				
2828	MA	MLCWS	TPMARK,WORK6		12	15036	D 3303D 33581 7 G
2829		MRZW	NWM48,WORK6		12	15048	D 32989 33581 T
2830		BW	*&13,WORK6	SHOULD NOT BRANCH	12	15060	V 15084 33581 1 G
2831		BCE	M8-19,WORK6,GM	SHOULD BRANCH	12	15072	B 15098 33581 M
2832		B	TYPCK		7	15084	J 01074
2833		DCW	@#19.15@,G		6	15096	
2834		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15098	J 01160 Q
2835		BBE	MA,TAD1,1		12	15105	W 15036 01001 1
2836	SUB-RTN	19.16	CHECK MRCW				
2837	M8	MLCWS	EMM,WORK6		12	15117	D 33045 33581 7 T
2838		MRCW	NWM27,WORK6		12	15129	D 32968 33581 M
2839		BW	*&13,WORK6	SHOULD NOT BRANCH	12	15141	V 15165 33581 1
2840		BCE	MC-19,WORK6,,	SHOULD BRANCH	12	15153	B 15179 33581 ,
2841		B	TYPCK		7	15165	J 01074
2842		DCW	@#19.16@,G		6	15177	
2843		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15179	J 01160 Q
2844		BBE	M8,TAD1,1		12	15186	W 15117 01001 1
2845	SUB-RTN	19.17	CHECK SCNLA FOR MOVE NO DATA, PROPER ADDR REG STP				
2846	MC	MLCWS	LBRAKT,102		12	15198	D 33009 00102 7
2847		MLCWS	NWM02,103		12	15210	D 32944 00103 7
2848		MLCWS	LBRAKT,104		12	15222	D 33009 00104 7 S
2849		SCNLA	103,104		12	15234	D 001D3 00104 8
2850		SAR	HOLDA2		7	15246	G 33949 A
2851		SBR	HOLDB2		7	15253	G 33954 B
2852		C	HOLDA2,@00101@	CHECK AAR FOR PROPER STEPPING	11	15260	C 33949 01386
2853		BU	MD	SHOULD NOT BRANCH	7	15271	J 15314 /
2854		C	HOLDB2,@00102@	CHECK BAR FOR PROPER STEPPING	11	15278	C 33954 01391
2855		BU	MD	SHOULD NOT BRANCH	7	15289	J 15314 /

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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2856               C      NWM61,104        TEST THAT NO DATA WERE MOVED    11  15296  C 33002 00104
2857               BE     ME-19            SHOULD BRANCH & EXIT ROUTINE HERE  7  15307  J 15328 S
2858     MD        B      TYPCK          ** ALL #19.17 ERRORS COME HERE     7  15314  J 01074
2859               DCW    @#19.17@,G                                        6  15326
2860               BNQ    AA               TEST FOR INQUIRY REQUEST         7  15328  J 01160 Q
2861               BBE    MC,TAD1,1                                        12  15335  W 15198 01001 1
2862       SUB-RTN 19.18  CHECK MLNA
2863     ME        MLCWS  DELTA,102                                        12  15347  D 33017 00102 7
2864               MLCWS  NWM16,103                                        12  15359  D 32958 00103 7
2865               MLCWS  DELTA,104                                        12  15371  D 33017 00104 7
2866               MLNA   103,104                                          12  15383  D 00103 00104 /
2867               C      NWM32,104                                        11  15395  C 32973 00104
2868               BE     MF-19            SHOULD BRANCH & EXIT ROUTINE HERE  7  15406  J 15427 S
2869               B      TYPCK                                            7  15413  J 01074
2870               DCW    @#19.18@,G                                        6  15425
2871               BNQ    AA               TEST FOR INQUIRY REQUEST         7  15427  J 01160 Q
2872               BBE    ME,TAD1,1                                        12  15434  W 15347 01001 1
2873       SUB-RTN 19.19  CHECK MLZA
2874     MF        MLCWS  PERCNT,102                                       12  15446  D 33021 00102 7
2875               MLCWS  NWM35,103                                        12  15458  D 32976 00103 7
2876               MLCWS  PERCNT,104                                       12  15470  D 33021 00104 7
2877               MLZA   103,104                                          12  15482  D 00103 00104 S
2878               C      NWM44,104                                        11  15494  C 32985 00104
2879               BE     MG-19            SHOULD BRANCH & EXIT ROUTINE HERE  7  15505  J 15526 S
2880               B      TYPCK                                            7  15512  J 01074
2881               DCW    @#19.19@,G                                        6  15524
2882               BNQ    AA               TEST FOR INQUIRY REQUEST         7  15526  J 01160 Q
2883               BBE    MF,TAD1,1                                        12  15533  W 15446 01001 1
2884       SUB-RTN 19.20  CHECK MLCA
2885     MG        MLCWS  NWM63,WORK6                                      12  15545  D 33004 33581 7
2886               MLCA   BLANK,WORK6                                      12  15557  D 33006 33581 T
2887               BW     *&13,WORK6       SHOULD NOT BRANCH                12  15569  V 15593 33581 1
2888               BCE    MH-19,WORK6,     SHOULD BRANCH                    12  15581  B 15607 33581
2889               B      TYPCK                                            7  15593  J 01074
2890               DCW    @#19.20@,G                                        6  15605
2891               BNQ    AA               TEST FOR INQUIRY REQUEST         7  15607  J 01160 Q
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2892                 88E    MG,TAD1,1                        12  15614  W 15545 01001 1
2893        SUB-RTN  19.21  CHECK MLWA
2894      MH         MLCWS  NWM53,WORK6                      12  15626  D 32994 33581 7
2895                 MLWA   NAUGHT,WORK6                     12  15638  D 33060 33581 U
2896                 C      NWM53,WORK6                      11  15650  C 32994 33581
2897                 8E     MI-19            SHOULD BRANCH    7  15661  J 15682 S
2898                 8      TYPCK                             7  15668  J 01074
2899                 DCW    @#19.21@,G                        6  15680
2900                 8NQ    AA               TEST FOR INQUIRY REQUEST  7  15682  J 01160 Q
2901                 88E    MH,TA01,1                        12  15689  W 15626 01001 1
2902        SUB-RTN  19.22  CHECK MLNWA
2903      MI         MLCWS  NWM47,WORK6                      12  15701  D 32988 33581 7
2904                 MLNWA  SUBLNK,WORK6                     12  15713  D 33025 33581 V
2905                 C      NWM32,WORK6                      11  15725  C 32973 33581
2906                 8E     MJ-19            SHOULD BRANCH    7  15736  J 15757 S
2907                 8      TYPCK                             7  15743  J 01074
2908                 DCW    @#19.22@,G                        6  15755
2909                 8NQ    AA               TEST FOR INQUIRY REQUEST  7  15757  J 01160 Q
2910                 88E    MI,TA01,1                        12  15764  W 15701 01001 1
2911        SUB-RTN  19.23  CHECK MLZWA
2912      MJ         MLCWS  NWM03,WORK6                      12  15776  D 32945 33581 7
2913                 MLZWA  LOZNGE,WORK6                     12  15788  D 33008 33581 W
2914                 C      NWM51,WORK6                      11  15800  C 32992 33581
2915                 8E     MK-19            SHOULD BRANCH    7  15811  J 15832 S
2916                 8      TYPCK                             7  15818  J 01074
2917                 DCW    @#19.23@,G                        6  15830
2918                 8NQ    AA               TEST FOR INQUIRY REQUEST  7  15832  J 01160 Q
2919                 88E    MJ,TAD1,1                        12  15839  W 15776 01001 1
2920        SUB-RTN  19.24  CHECK MLCWA
2921      MK         MLCWS  ALL8IT,102                       12  15851  O 33011 00102 7
2922                 MLCWS  NWM00,103                        12  15863  D 32942 00103 7
2923                 MLCWS  ALLBIT,104                       12  15875  O 33011 00104 7
2924                 MLCWA  103,104                          12  15887  O 00103 00104 X
2925                 8W     *813,104          SHOULD NOT BRANCH  12  15899  V 15923 00104 1
2926                 8CE    ML-19,104,        SHOULD BRANCH    12  15911  B 15936 00104
2927                 8      TYPCK                             7  15923  J 01074
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PGLIN   LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2928             DCW    @#19.24@                                          6  15935
2929             BNQ    AA                 TEST FOR INQUIRY REQUEST       7  15936  J 01160 Q
2930             BBE    MK,TAD1,1                                        12  15943  W 15851 01001 1
2931     SUB-RTN 19.25  CHECK SCNRR FOR MOVE ND DATA, PROPER ADDR REG STP
2932     ML      MLCWA  NWM26,101                                        12  15955  D 33005 00101 X
2933             MLCWS  GREATR,37                                        12  15967  D 33029 00037 7
2934             MLCWS  NWM49,36                                         12  15979  D 32990 00036 7
2935             SCNRR  37,36                                            12  15991  D 00037 00036 Y
2936             SAR    HOLDA2                                            7  16003  G 33949 A
2937             SBR    HOLDB2                                            7  16010  G 33954 B
2938             C      HOLDA2,@00102@     CHECK AAR FOR PROPER STEPPING  11  16017  C 33949 01391
2939             BU     MM                 SHOULD NOT BRANCH              7  16028  J 16077 /
2940             C      HOLDB2,@00101@     CHECK BAR FOR PROPER STEPPING  11  16035  C 33954 01386
2941             BU     MM                 SHOULD NOT BRANCH              7  16046  J 16077 /
2942             SW     38                                                6  16053  , 00038
2943             C      NWM26,101          TEST THAT NO DATA WERE MOVED   11  16059  C 33005 00101
2944             BE     MN-19              SHOULD BRANCH & EXIT ROUTINE HERE 7  16070  J 16091 S
2945     MM      B      TYPCK                                             7  16077  J 01074
2946             DCW    @#19.25@,G                                        6  16089
2947             BNQ    AA                 TEST FOR INQUIRY REQUEST       7  16091  J 01160 Q
2948             BBE    ML,TAD1,1                                        12  16098  W 15955 01001 1
2949     SUB-RTN 19.26  CHECK MRNR
2950     MN      CW     100                                               6  16110  ¤ 00100
2951             MRCW   K01,100                                          12  16116  D 33070 00100 T M
2952             MRNR   K02,100                                          12  16128  D 33072 00100 Z
2953             BW     MP,100             SHOULD NOT BRANCH              12  16140  V 16202 00100 1
2954             BW     *&8,101            SHOULD BRANCH                  12  16152  V 16171 00101 1
2955             B      MP                                                7  16164  J 16202
2956             BCE    *&8,100,           SHOULD BRANCH                  12  16171  B 16190 00100
2957             B      MP                                                7  16183  J 16202
2958             BCE    MQ-19,101,:                                      12  16190  B 16216 00101 :
2959     MP      B      TYPCK                                             7  16202  J 01074
2960             DCW    @#19.26@,G                                        6  16214
2961             BNQ    AA                 TEST FOR INQUIRY REQUEST       7  16216  J 01160 Q
2962             BBE    MN,TAD1,1                                        12  16223  W 16110 01001 1
2963     SUB-RTN 19.27  CHECK MRZR
```

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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2964     MQ        CW     100                                              6  16235  ¤ 00100
                                                                                      T
2965               MRCW   K03,100                                         12  16241  D 33074 00100 M
2966               MRZR   K04,100                                         12  16253  D 33076 00100 +
2967               BW     MR,100          SHOULD NOT BRANCH               12  16265  V 16327 00100 1
2968               BW     *&8,101         SHOULD BRANCH                   12  16277  V 16296 00101 1
2969               B      MR                                               7  16289  J 16327
2970               BCE    *&B,100,-       SHOULD BRANCH                   12  16296  B 16315 00100 -
2971               B      MR                                               7  16308  J 16327
2972               BCE    MS-19,101,V     SHOULD BRANCH & EXIT ROUTINE HERE 12  16315  B 16341 00101 V
2973     MR        B      TYPCK                                            7  16327  J 01074
2974               DCW    @#19.27@,G                                       6  16339
2975               BNQ    AA              TEST FOR INQUIRY REQUEST         7  16341  J 01160 Q
2976               BBE    MQ,TAD1,1                                       12  16348  W 16235 01001 1
2977       SUB-RTN 19.28  CHECK MRCR
2978     MS        MLCWA  K05,101                                         12  16360  D 33079 00101 X
2979               MRCR   K06,100                                         12  16372  D 33080 00100 ,
2980               BW     *&8,100         SHOULD BRANCH                   12  16384  V 16403 00100 1
2981               B      MT                                               7  16396  J 16421
2982               C      101,K14&1                                       11  16403  C 00101 33097
2983               BE     MU-19           SHOULD BRANCH & EXIT ROUTINE HERE 7  16414  J 16435 S
2984     MT        B      TYPCK                                            7  16421  J 01074
2985               DCW    @#19.28@,G                                       6  16433
2986               BNQ    AA              TEST FOR INQUIRY REQUEST         7  16435  J 01160 Q
2987               BBE    MS,TAD1,1                                       12  16442  W 16360 01001 1
2988       SUB-RTN 19.29  CHECK MRWR
2989     MU        MLCWA  K07,101                                         12  16454  D 33083 00101 X
2990               MRWR   K08,100                                         12  16466  D 33084 00100 %
2991               BW     MV,100          SHOULD NOT BRANCH               12  16478  V 16540 00100 1
2992               BW     *&8,101         SHOULD BRANCH                   12  16490  V 16509 00101 1
2993               B      MV                                               7  16502  J 16540
2994               BCE    *&8,100,I       SHOULD BRANCH                   12  16509  B 16528 00100 I
2995               B      MV                                               7  16521  J 16540
2996               BCE    MW-19,101,N     SHOULD BRANCH & EXIT ROUTINE HERE 12  16528  B 16554 00101 N
2997     MV        B      TYPCK                                            7  16540  J 01074
2998               DCW    @#19.29@,G                                       6  16552
2999               BNQ    AA              TEST FOR INQUIRY REQUEST         7  16554  J 01160 Q
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PGLIN   LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3000              BBE    MU,TAD1,1                                        12  16561  W 16454 01001 1
3001      SUB-RTN 19.30  CHECK MRNWR
3002    MW        MLCWA  K09,101                                          12  16573  D 33087 00101 X
3003              MRNWR  K10,100                                          12  16585  D 33088 00100 W S
3004              BW     MX,100          SHOULD NOT BRANCH                12  16597  V 16659 00100 1
3005              BW     *&8,101         SHOULD BRANCH                    12  16609  V 16628 00101 1
3006              B      MX                                               7  16621  J 16659
3007              BCE    *&8,100,S B     SHOULD BRANCH                    12  16628  B 16647 00100 S B
3008              B      MX                                               7  16640  J 16659
3009              BCE    MY-19,101,:     SHOULD BRANCH & EXIT ROUTINE HERE 12  16647  B 16673 00101 :
3010    MX        B      TYPCK                                            7  16659  J 01074
3011              DCW    @#19.30@,G                                       6  16671
3012              BNQ    AA              TEST FOR INQUIRY REQUEST         7  16673  J 01160 Q
3013              BBE    MW,TAD1,1                                        12  16680  W 16573 01001 1
3014      SUB-RTN 19.31  CHECK MRZWR
3015    MY        MLCWA  K11,101                                          12  16692  D 33091 00101 X
3016              MRZWR  K12,100                                          12  16704  D 33092 00100 B S
3017              BW     MZ,100          SHOULD NOT BRANCH                12  16716  V 16778 00100 1
3018              BW     *&8,101         SHOULD BRANCH                    12  16728  V 16747 00101 1
3019              B      MZ                                               7  16740  J 16778
3020              BCE    *&8,100,X       SHOULD BRANCH                    12  16747  B 16766 00100 X
3021              B      MZ                                               7  16759  J 16778
3022              BCE    NA-19,101,V     SHOULD BRANCH & EXIT ROUTINE HERE 12  16766  B 16792 00101 V
3023    MZ        B      TYPCK                                            7  16778  J 01074
3024              DCW    @#19.31@,G                                       6  16790
3025              BNQ    AA              TEST FOR INQUIRY REQUEST         7  16792  J 01160 Q
3026              BBE    MY,TAD1,1                                        12  16799  W 16692 01001 1
3027      SUB-RTN 19.32  CHECK MRCWR
3028    NA        CW     100                                              6  16811  ¤ 00100
3029              MRCW   K13,100                                          12  16817  D 33094 00100 T M
3030              MRCWR  K14,100                                          12  16829  D 33096 00100 S M
3031              BW     *&8,100         SHOULD BRANCH                    12  16841  V 16860 00100 1
3032              B      NB                                               7  16853  J 16878
3033              C      101,K14&1                                        11  16860  C 00101 33097
3034              BE     NC-19           SHOULD BRANCH & EXIT ROUTINE HERE 7  16871  J 16892 S
3035    NB        B      TYPCK                                            7  16878  J 01074
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PGLIN     LABEL      OPCOD  OPERAND                                                    CT  ADORS  INSTRUCTION
3036                 OCW    @#19.32@,G                                                  6  16890
3037                 BNQ    AA                    TEST FOR INQUIRY REQUEST              7  16892  J 01160 Q
3038                 BBE    NA,TA01,1                                                  12  16899  W 16811 01001 1
3039       SUB-RTN 19.33  CHECK SCNLB FOR MOVE NO DATA, PROPER ADDR REG STP
3040     NC          MLCWS  TPMARK,102                                                 12  16911  D 33030 00102 7
3041                 MLCWS  NWM48,103                                                  12  16923  D 32989 00103 7
3042                 MLCWS  AMPSND,104                                                 12  16935  D 33012 00104 7
3043                 SCNLB  104,103                                                    12  16947  D 00104 00103 -
3044                 SAR    HOLOA2                                                      7  16959  G 33949 A
3045                 SBR    HOLDB2                                                      7  16966  G 33954 B
3046                 C      HOLDA2,@00102@                                             11  16973  C 33949 01391
3047                 BU     NO                    SHOULD NOT BRANCH                     7  16984  J 17027 /
3048                 C      HOLDB2,@00101@                                             11  16991  C 33954 01386
3049                 BU     NO                    SHOULD NOT BRANCH                     7  17002  J 17027 /
3050                 C      NWM15,102             TEST THAT NO DATA WERE MOVED         11  17009  C 32957 00102
3051                 BE     NE-19                 SHOULD BRANCH & EXIT ROUTINE HERE     7  17020  J 17041 S
3052     NO          B      TYPCK                                                       7  17027  J 01074
3053                 DCW    @#19.33@,G                                                  6  17039
3054                 BNQ    AA                    TEST FOR INQUIRY REQUEST              7  17041  J 01160 Q
3055                 BBE    NC,TA01,1                                                  12  17048  W 16911 01001 1
3056       SUB-RTN 19.34  CHECK MLNB
3057     NE          MLCWS  BKSLSH,WORK6                                               12  17060  D 33023 33581 7
3058                 MLNB   NWM33,WORK6                                               12  17072  D 32974 33581 J
3059                 C      NWM17,WORK6                                               11  17084  C 32959 33581
3060                 BE     NF-19                 SHOULD BRANCH                         7  17095  J 17116 S
3061                 B      TYPCK                                                       7  17102  J 01074
3062                 DCW    @#19.34@,G                                                  6  17114
3063                 BNQ    AA                    TEST FOR INQUIRY REQUEST              7  17116  J 01160 Q
3064                 BBE    NE,TA01,1                                                  12  17123  W 17060 01001 1
3065       SUB-RTN 19.35  CHECK MLZB
3066     NF          SW     100                                                         6  17135  , 00100
3067                 MLCWS  NWM63,101                                                  12  17141  O 33004 00101 7
3068                 MLZB   BLANK,101                                                  12  17153  D 33006 00101 K
3069                 BW     *&13,101              SHOULD NOT BRANCH                    12  17165  V 17189 00101 1
3070                 BCE    NG-19,101,M           SHOULD BRANCH                        12  17177  B 17203 00101 M
3071                 B      TYPCK                                                       7  17189  J 01074
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3072                DCW    @#19.35@,G                                       6  17201
3073                BNQ    AA                TEST FOR INQUIRY REQUEST      7  17203  J 01160 Q
3074                BBE    NF,TAD1,1                                       12  17210  W 17135 01001 1
3075       SUB-RTN 19.36   CHECK MLCB
3076     NG         SW     100                                              6  17222  , 00100
3077                MLCWS  NWM52,101                                       12  17228  D 32993 00101 7
3078                MLCB   POUND,101                                       12  17240  D 33026 00101 L
3079                BW     *&13,101          SHOULD NOT BRANCH             12  17252  V 17276 00101 1
3080                BCE    NH-19,101,#       SHOULD BRANCH                 12  17264  B 17290 00101 #
3081                B      TYPCK                                           7  17276  J 01074
3082                DCW    @#19.36@,G                                       6  17288
3083                BNQ    AA                TEST FOR INQUIRY REQUEST      7  17290  J 01160 Q
3084                BBE    NG,TAD1,1                                       12  17297  W 17222 01001 1
3085       SUB-RTN 19.37   CHECK MLWB
3086     NH         SW     100                                              6  17309  , 00100
3087                MLCWS  NWM15,101                                       12  17315  O 32957 00101 7
3088                MLWB   AMPSNO,101                                      12  17327  O 33012 00101 M
3089                C      NWM15,101                                       11  17339  C 32957 00101
3090                BE     NI-19             SHOULD BRANCH                 7  17350  J 17371 S
3091                B      TYPCK                                           7  17357  J 01074
3092                DCW    @#19.37@,G                                       6  17369
3093                BNQ    AA                TEST FOR INQUIRY REQUEST      7  17371  J 01160 Q
3094                BBE    NH,TAD1,1                                       12  17378  W 17309 01001 1
3095       SUB-RTN 19.38   CHECK MLNWB
3096     NI         SW     100                                              6  17390  , 00100
3097                MLCWS  NWM06,101                                       12  17396  D 32948 00101 7
3098                MLNWB  EYE,101                                         12  17408  D 33040 00101 N
3099                C      NWM09,101                                       11  17420  C 32951 00101
3100                BE     NJ-19             SHOULD BRANCH                 7  17431  J 17452 S
3101                B      TYPCK                                           7  17438  J 01074
3102                DCW    @#19.38@,G                                       6  17450
3103                BNQ    AA                TEST FOR INQUIRY REQUEST      7  17452  J 01160 Q
3104                BBE    NI,TAD1,1                                       12  17459  W 17390 01001 1
3105       SUB-RTN 19.39   CHECK MLZWB
3106     NJ         MLCWS  ALLBIT,WORK6                                    12  17471  D 33011 33581 7
3107                MLZWB  NWM00,WORK6                                     12  17483  D 32942 33581 O
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3108		BW	*&13,WORK6	SHOULD NOT BRANCH	12	17495	V 17519 33581 1
3109		BCE	NK-19,WORK6,M	SHOULD BRANCH	12	17507	B 17533 33581 M
3110		B	TYPCK		7	17519	J 01074
3111		DCW	@#19.39@,G		6	17531	
3112		BNQ	AA	TEST FOR INQUIRY REQUEST	7	17533	J 01160 Q
3113		BBE	NJ,TAD1,1		12	17540	W 17471 01001 1
3114	SUB-RTN	19.40	CHECK MLCWB				
3115	NK	MLCWS	LOZNGE,WORK6		12	17552	O 33008 33581 7
3116		MLCWB	NWM03,WORK6		12	17564	O 32945 33581 P
3117		BW	*&13,WORK6	SHOULD NOT BRANCH	12	17576	V 17600 33581 1
3118		BCE	NL-19,WORK6,3	SHOULD BRANCH	12	17588	B 17614 33581 3
3119		B	TYPCK		7	17600	J 01074
3120		DCW	@#19.40@,G		6	17612	
3121		BNQ	AA	TEST FOR INQUIRY REQUEST	7	17614	J 01160 Q
3122		BBE	NK,TAD1,1		12	17621	W 17552 01001 1
3123	SUB-RTN	19.41	CHECK SCNRG FOR MOVE NO DATA, PROPER AOOR REG STP				
3124	NL	CS	164	INSURE 00100-00164 BLANK	6	17633	/ 00164
3125		MLCWS	ALLBIT,101	PUT TERMINAL CHARACTER IN 00101	12	17639	D 33011 00101 7
3126		MLWA	164,100	INSURE NO WMS 00038-00100	12	17651	O 00164 00100 U
3127		MLCWB	NINE,100	MOVE 64 CHARACTERS TO 00037-00100	12	17663	O 33069 00100 P
3128		CW	42	REMOVE WM FROM GROUP MARK	6	17675	¤ 00042
3129		SCNRG	37,36	TRY THE SCAN	12	17681	D 00037 00036 Q
3130		SAR	HOLOA2		7	17693	G 33949 A
3131		SBR	HOLOB2		7	17700	G 33954 B
3132		C	HOLDA2,@00102@	CHECK AAR FOR PROPER SETTING	11	17707	C 33949 01391
3133		BU	NM	SHOULD NOT BRANCH	7	17718	J 17797 /
3134		C	HOLOB2,@00101@	CHECK BAR FOR PROPER SETTING	11	17725	C 33954 01386
3135		BU	NM	SHOULD NOT BRANCH	7	17736	J 17797 /
3136		BW	NM,42	SHOULD NOT BRANCH	12	17743	V 17797 00042 1
3137		MLWA	164,100	REMOVE ALL WMS FROM 00038-00100	12	17755	O 00164 00100 U
3138		MLCB	NINE,164	MOVE 64 CHARACTERS TO 00101-00164	12	17767	D 33069 00164 L
3139		C	100,164	CHECK THAT SCAN MOVED NO DATA	11	17779	C 00100 00164
3140		BE	NN-19	SHOULD BRANCH & EXIT ROUTINE HERE	7	17790	J 17811 S
3141	NM	B	TYPCK		7	17797	J 01074
3142		DCW	@#19.41@,G		6	17809	
3143		BNQ	AA	TEST FOR INQUIRY REQUEST	7	17811	J 01160 Q

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  I   T
3144                 BBE    NL,TAD1,1                                12  17818  W 17[illegible] 01001 1
3145        SUB-RTN 19.42   CHECK MRNG
3146      NN         MLCWS  NWM19,101                                12  17830  D 32961 00101 7
3147                 MLCWS  SPLAT,102                                12  17842  D 33014 00102 7
3148                 MLCWS  ALLBIT,103                               12  17854  D 33011 00103 7
3149                 MRNG   102,101                                  12  17866  D 00102 00101 8
3150                 BW     *&13,101          SHOULD NOT BRANCH      12  17878  V 17902 00101 1
3151                 BCE    NP-19,101,%       SHOULD BRANCH          12  17890  B 17916 00101 %
3152                 B      TYPCK                                     7  17902  J 01074
3153                 DCW    @#19.42@,G                                6  17914
3154                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  17916  J 01160 Q
3155                 BBE    NN,TAD1,1                                12  17923  W 17830 01001 1
3156        SUB-RTN 19.43   CHECK MRZG
3157      NP         MLCWS  ALLBIT,101                               12  17935  D 33011 00101 7
3158                 MLCWS  NWM00,102                                12  17947  D 32942 00102 7
3159                 MLCWS  ALLBIT,103                               12  17959  D 33011 00103 7
3160                 MRZG   102,101                                  12  17971  D 00102 00101 !
3161                 C      NWM15,101                                11  17983  C 32957 00101
3162                 BE     NQ-19             SHOULD BRANCH          7  17994  J 18015 S
3163                 B      TYPCK                                     7  18001  J 01074
3164                 DCW    @#19.43@,G                                6  18013
3165                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  18015  J 01160 Q
3166                 BBE    NP,TAD1,1                                12  18022  W 17935 01001 1
3167        SUB-RTN 19.44   CHECK MRCG
3168      NQ         MLCWS  AITCH,101                                12  18034  D 33039 00101 7
3169                 MLCWS  NWM07,102                                12  18046  D 32949 00102 7
3170                 MLCWS  ALLBIT,103                               12  18058  D 33011 00103 7
3171                 MRCG   102,101                                  12  18070  D 00102 00101 $
3172                 C      NWM07,101                                11  18082  C 32949 00101
3173                 BE     NR-19             SHOULD BRANCH          7  18093  J 18114 S
3174                 B      TYPCK                                     7  18100  J 01074
3175                 DCW    @#19.44@,G                                6  18112
3176                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  18114  J 01160 Q
3177                 BBE    NQ,TAD1,1                                12  18121  W 18034 01001 1
3178        SUB-RTN 19.45   CHECK MRWG
3179      NR         MLCWS  DELTA,101                                12  18133  D 33017 00101 7
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3180		MLCWS	NWM16,102		12	18145	D 32958 00102 7
3181		MLCWS	ALLBIT,103		12	18157	D 33011 00103 7
3182		MRWG	102,101		12	18169	D 00102 00101 *
3183		BW	*&13,101	SHOULD NOT BRANCH	12	18181	V 18205 00101 1
3184		BCE	NS-19,101,L	SHOULD BRANCH	12	18193	B 18219 00101 D L
3185		B	TYPCK		7	18205	J 01074
3186		DCW	@#19.45@,G		6	18217	
3187		BNQ	AA	TEST FOR INQUIRY REQUEST	7	18219	J 01160 Q
3188		BBE	NR,TAD1,1		12	18226	W 18133 01001 1
3189	SUB-RTN 19.46		CHECK MRNWG				
3190	NS	MLCWS	EXCLAM,101		12	18238	D 33041 00101 7
3191		MLCWS	NWM21,102		12	18250	D 32963 00102 7
3192		MLCWS	ALLBIT,103		12	18262	D 33011 00103 7
3193		MRNWG	102,101		12	18274	D 00102 00101 R B
3194		BW	*&13,101	SHOULD NOT BRANCH	12	18286	V 18310 00101 1
3195		BCE	NT-19,101,N		12	18298	B 18324 00101 N
3196		B	TYPCK		7	18310	J 01074
3197		DCW	@#19.46@,G		6	18322	
3198		BNQ	AA	TEST FOR INQUIRY REQUEST	7	18324	J 01160 Q
3199		BBE	NS,TAD1,1		12	18331	W 18238 01001 1
3200	SUB-RTN 19.47		CHECK MRZWG				
3201	NT	MLCWS	NWM63,101		12	18343	D 33004 00101 7
3202		MLCWS	BLANK,102		12	18355	D 33006 00102 7
3203		MLCWS	ALLBIT,103		12	18367	D 33011 00103 7
3204		MRZWG	102,101		12	18379	D 00102 00101 ;
3205		C	NWM15,101		11	18391	C 32957 00101
3206		BE	NU-19	SHOULD BRANCH	7	18402	J 18423 S
3207		B	TYPCK		7	18409	J 01074
3208		DCW	@#19.47@,G		6	18421	
3209		BNQ	AA	TEST FOR INQUIRY REQUEST	7	18423	J 01160 Q
3210		BBE	NT,TAD1,1		12	18430	W 18343 01001 1
3211	SUB-RTN 19.48		CHECK MRCWG				
3212	NU	MLCWS	NWM48,101		12	18442	D 32989 00101 7
3213		MLCWS	TPMARK,102		12	18454	D 33030 00102 7
3214		MLCWS	ALLBIT,103		12	18466	D 33011 00103 7
3215		MRCWG	102,101		12	18478	D 00102 00101 D L

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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3216               C      NWM15,101                                        11  18490  C 32997 00101
3217               BE     NV-19              SHOULD BRANCH                  7  18501  J 18522 S
3218               B      TYPCK                                             7  18508  J 01074
3219               DCW    @#19.48@,G                                        6  18520
3220               BNQ    AA                 TEST FOR INQUIRY REQUEST       7  18522  J 01160 Q
3221               BBE    NU,TAD1,1                                        12  18529  W 18442 01001 1
3222      SUB-RTN 19.49   CHECK SCNL FOR MOVE NO DATA, PROPER ADDR REG STEP
3223     NV        MLCWS  JAY,102                                          12  18541  D 33042 00102 7
3224               MLCWS  NWM30,103                                        12  18553  D 32971 00103 7
3225               SCNL   102,103            TEST STOP ON A-FIELD WM       12  18565  D 00102 00103 &
3226               SAR    HOLDA2                                            7  18577  G 33949 A
3227               SBR    HOLDB2                                            7  18584  G 33954 B
3228               C      HOLDA2,@00101@     CHECK AAR FOR PROPER STEPPING  11  18591  C 33949 01386
3229               BU     NW                 SHOULD NOT BRANCH              7  18602  J 18720 /
3230               C      HOLDB2,@00102@     CHECK BAR FOR PROPER STEPPING  11  18609  C 33954 01391
3231               BU     NW                 SHOULD NOT BRANCH              7  18620  J 18720 /
3232               BW     NW,103             SHOULD NOT BRANCH WORD MARK   12  18627  V 18720 00103 1
3233               BCE    *&B,103,S          SHOULD BRANCH                 12  18639  B 18658 00103 S
3234               B      NW                                                7  18651  J 18720
3235               SCNL   103,102            TEST STOP ON B-FIELD WM       12  18658  D 00103 00102 &
3236               SAR    HOLDA2                                            7  18670  G 33949 A
3237               SBR    HOLDB2                                            7  18677  G 33954 B
3238               C      HOLDA2,@00102@                                   11  18684  C 33949 01391
3239               BU     NW                 SHOULD NOT BRANCH              7  18695  J 18720 /
3240               C      HOLDB2,@00101@                                   11  18702  C 33954 01386
3241               BE     NX-19              SHOULD BRANCH & EXIT ROUTINE HERE 7  18713  J 18734 S
3242     NW        B      TYPCK                                             7  18720  J 01074
3243               DCW    @#19.49@,G                                        6  18732
3244               BNQ    AA                 TEST FOR INQUIRY REQUEST       7  18734  J 01160 Q
3245               BBE    NV,TAD1,1                                        12  18741  W 18541 01001 1
3246      SUB-RTN 19.50   CHECK MLN
3247     NX        MLCWS  NWM63,WORK6                                      12  18753  D 33004 33581 7
3248               MLN    BLANK,WORK6                                      12  18765  D 33006 33581 A
3249               BW     *&13,WORK6         SHOULD NOT BRANCH             12  18777  V 18801 33581 1
3250               BCE    NY-19,WORK6,&      SHOULD BRANCH                 12  18789  B 18815 33581 &
3251               B      TYPCK                                             7  18801  J 01074
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PGLIN   LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

3252               DCW    @#19.50@,G                                6  18813
3253               BNQ    AA                TEST FOR INQUIRY REQUEST  7  18815  J 01160 Q
3254               8BE    NX,TAD1,1                                12  18822  W 18753 01001 1
3255      SUB-RTN 19.51   CHECK MLZ
3256   NY          MLCWS  NWM51,WORK6                              12  18834  D 32992 33581 7
3257               MLZ    ATSIGN,WORK6                             12  18846  D 33027 33581 B
3258               BW     *&13,WORK6        SHOULD NOT BRANCH      12  18858  V 18882 33581 1
3259               BCE    NZ-19,WORK6,3     SHOULD BRANCH          12  18870  B 18896 33581 3
3260               B      TYPCK                                     7  18882  J 01074
3261               DCW    @#19.51@,G                                6  18894
3262               BNQ    AA                TEST FOR INQUIRY REQUEST  7  18896  J 01160 Q
3263               8BE    NY,TAD1,1                                12  18903  W 18834 01001 1
3264      SUB-RTN 19.52   CHECK MLC
3265   NZ          MLCWS  NWM31,WORK6                              12  18915  D 32972 33581 7
3266               MLC    DASH,WORK6                               12  18927  D 33018 33581 C
3267               BW     *&13,WORK6        SHOULD NOT BRANCH      12  18939  V 18963 33581 1
3268               BCE    PA-19,WORK6,-     SHOULD BRANCH          12  18951  B 18977 33581 -
3269               B      TYPCK                                     7  18963  J 01074
3270               DCW    @#19.52@,G                                6  18975
3271               BNQ    AA                TEST FOR INQUIRY REQUEST  7  18977  J 01160 Q
3272               8BE    NZ,TAD1,1                                12  18984  W 18915 01001 1
3273      SUB-RTN 19.53   CHECK MLW
3274   PA          MLCWS  NWM09,WORK6                              12  18996  D 32951 33581 7
3275               MLW    EFF,WORK6                                12  19008  D 33037 33581 D
3276               C      NWM09,WORK6                              11  19020  C 32951 33581
3277               BE     PB-19             SHOULD BRANCH          7  19031  J 19052 S
3278               B      TYPCK                                     7  19038  J 01074
3279               DCW    @#19.53@,G                                6  19050
3280               BNQ    AA                TEST FOR INQUIRY REQUEST  7  19052  J 01160 Q
3281               BBE    PA,TAD1,1                                12  19059  W 18996 01001 1
3282      SUB-RTN 19.54   CHECK MLNW
3283   PB          MLCWS  ALLBIT,WORK6                             12  19071  D 33011 33581 7
3284               MLNW   NWM00,WORK6                              12  19083  D 32942 33581 E
3285               BW     *&13,WORK6        SHOULD NOT BRANCH      12  19095  V 19119 33581 1
3286               BCE    PC-19,WORK6,&     SHOULD BRANCH          12  19107  B 19133 33581 &
3287               B      TYPCK                                     7  19119  J 01074
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3288                DCW    @#19.54@,G                                       6  19131
3289                BNQ    AA                TEST FOR INQUIRY REQUEST       7  19133  J 01160 Q
3290                BBE    PB,TAD1,1                                       12  19140  W 19071 01001 1
3291       SUB-RTN 19.55   CHECK MLZW
3292     PC         MLCWS  PERIOD,WORK6                                    12  19152  D 33007 33581 7
3293                MLZW   NWM04,WORK6                                     12  19164  D 32946 33581 F
3294                BW     *&13,WORK6        SHOULD NOT BRANCH              12  19176  V 19200 33581 1
3295                BCE    PD-19,WORK6,#     SHOULD BRANCH                  12  19188  B 19214 33581 #
3296                B      TYPCK                                            7  19200  J 01074
3297                DCW    @#19.55@,G                                       6  19212
3298                BNQ    AA                TEST FOR INQUIRY REQUEST       7  19214  J 01160 Q
3299                BBE    PC,TAD1,1                                       12  19221  W 19152 01001 1
3300       SUB-RTN 19.56   CHECK MLCW
3301     PD         MLCWS  DELTA,WORK6                                     12  19233  D 33017 33581 7
3302                MLCW   NWM16,WORK6                                     12  19245  D 32958 33581 G
3303                BW     *&13,WORK6        SHOULD NOT BRANCH              12  19257  V 19281 33581 1
                                                                                                    S
3304                BCE    PE-19,WORK6,B     SHOULD BRANCH                  12  19269  B 19295 33581 B
3305                B      TYPCK                                            7  19281  J 01074
3306                DCW    @#19.56@,G                                       6  19293
3307                BNQ    AA                TEST FOR INQUIRY REQUEST       7  19295  J 01160 Q
3308                BBE    PD,TAD1,1                                       12  19302  W 19233 01001 1
3309       SUB-RTN 19.57   CHECK SCNRM FOR MOVE NO DATA, PROPER ADDR REG STP
3310     PE         CS     165               .             .                6  19314  / 00165
3311                SW     102               . SET UP FIELD .               6  19320  , 00102
3312                MLCB   NWM26,165         .     FOR     .               12  19326  D 33005 00165 L
3313                MLCWA  165,101           .    SCNRM    .               12  19338  D 00165 00101 X
3314                MLWB   SEVEN,99          .             .               12  19350  D 33067 00099 M
3315                SCNRM  38,37             TEST THE SCAN FOR STOP ON RM   12  19362  D 00038 00037 H
3316                SAR    HOLDA2                                           7  19374  G 33949 A
3317                SBR    HOLDB2                                           7  19381  G 33954 B
3318                C      HOLDA2,@00102@    CHECK FOR PROPER AAR STEPPING  11  19388  C 33949 01391
3319                BU     PF                SHOULD NOT BRANCH              7  19399  J 19528 /
3320                C      HOLDB2,@00101@    CHECK FOR PROPER BAR STEPPING  11  19406  C 33954 01386
3321                BU     PF                SHOULD NOT BRANCH              7  19417  J 19528 /
3322                MLWA   163,99            ERASE THE EXTRANEOUS WMS       12  19424  D 00163 00099 U
3323                C      101,165           TEST THAT SCNRM MOVED NO DATA  11  19436  C 00101 00165
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PGLIN    LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

3324                BU     PF                SHOULD NOT BRANCH       7  19447  J 19528 /
3325                MLCWS  ALLBIT,101                                12  19454  D 33011 00101 7
3326                SCNRM  38,37             TRY SCAN W/RM REPLACED BY GMWM  12  19466  D 00038 00037 H
3327                SAR    HOLDA2                                    7  19478  G 33949 A
3328                SBR    HOLD82                                    7  19485  G 33954 B
3329                C      HOLDA2,@00102@                           11  19492  C 33949 01391
3330                BU     PF                SHOULD NOT BRANCH       7  19503  J 19528 /
3331                C      HOLD82,@00101@                           11  19510  C 33954 01386
3332                BE     PG-19             SHOULD BRANCH & EXIT ROUTINE HERE  7  19521  J 19542 S
3333     PF         B      TYPCK           ** ALL #19.57 ERRORS COME HERE  7  19528  J 01074
3334                DCW    @#19.57@,G                                6  19540
3335                BNQ    AA                TEST FOR INQUIRY REQUEST  7  19542  J 01160 Q
3336                BBE    PE,TAD1,1                                12  19549  W 19314 01001 1
3337       SUB-RTN 19.58   CHECK MRNM
3338     PG         MLCWS  ALLBIT,100                                12  19561  D 33011 00100 7
3339                MLCWS  NWM00,101                                 12  19573  D 32942 00101 7
3340                MLCWS  RCDMRK,102                                12  19585  D 33051 00102 7
3341                MRNM   101,100                                   12  19597  D 00101 00100 I
3342                C      NWM48,100                                 11  19609  C 32989 00100
3343                BE     PH-19             SHOULD BRANCH           7  19620  J 19641 S
3344                B      TYPCK                                     7  19627  J 01074
3345                DCW    @#19.58@,G                                6  19639
3346                BNQ    AA                TEST FOR INQUIRY REQUEST  7  19641  J 01160 Q
3347                BBE    PG,TAD1,1                                12  19648  W 19561 01001 1
3348       SUB-RTN 19.59   CHECK MRZM
3349     PH         MLCWS  GEE,100                                   12  19660  D 33038 00100 7
3350                MLCWS  NWM08,101                                 12  19672  D 32950 00101 7
3351                MLCWS  ALLBIT,102                                12  19684  D 33011 00102 7
                                                                                                Q
3352                MRZM   101,100                                   12  19696  D 00101 00100 M
3353                C      NWM07,100                                 11  19708  C 32949 00100
3354                BE     PI-19             SHOULD BRANCH           7  19719  J 19740 S
3355                B      TYPCK                                     7  19726  J 01074
3356                DCW    @#19.59@,G                                6  19738
3357                BNQ    AA                TEST FOR INQUIRY REQUEST  7  19740  J 01160 Q
3358                BBE    PH,TAD1,1                                12  19747  W 19660 01001 1
3359       SUB-RTN 19.60   CHECK MRCM
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PGLIN   LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

3360    PI         MLCWS  TPMARK,100                               12  19759  D 33030 00100 7
3361               MLCWS  NWM48,101                                12  19771  D 32989 00101 7
3362               MLCWS  RCDMRK,102                               12  19783  D 33051 00102 7
3363               MRCM   101,100                                  12  19795  D 00101 00100 .
3364               C      NWM48,100                                11  19807  C 32989 00100
3365               BE     PJ-19          SHOULD BRANCH             7  19818  J 19839 S
3366               B      TYPCK                                    7  19825  J 01074
3367               DCW    @#19.60@,G                               6  19837
3368               BNQ    AA             TEST FOR INQUIRY REQUEST  7  19839  J 01160 Q
3369               BBE    PI,TAD1,1                               12  19846  W 19759 01001 1
3370      SUB-RTN 19.61   CHECK MRWM
3371    PJ         MLCWS  RBRAKT,100                               12  19858  D 33015 00100 7
3372               MLCWS  NWM18,101                                12  19870  D 32960 00101 7
3373               MLCWS  ALLBIT,102                               12  19882  D 33011 00102 7
3374               MRWM   101,100                                  12  19894  D 00101 00100 ¤
3375               BW     *£13,100       SHOULD NOT BRANCH        12  19906  V 19930 00100 1
                                                                                            R
3376               BCE    PK-19,100,B    SHOULD BRANCH            12  19918  B 19944 00100 B
3377               B      TYPCK                                    7  19930  J 01074
3378               DCW    @#19.61@,G                               6  19942
3379               BNQ    AA             TEST FOR INQUIRY REQUEST  7  19944  J 01160 Q
3380               BBE    PJ,TAD1,1                               12  19951  W 19858 01001 1
3381      SUB-RTN 19.62   CHECK MRNWM
3382    PK         MLCWS  NWM63,100                                12  19963  D 33004 00100 7
3383               MLCWS  BLANK,101                                12  19975  D 33006 00101 7
3384               MLCWS  RCDMRK,102                               12  19987  D 33051 00102 7
                                                                                            L
3385               MRNWM  101,100                                  12  19999  D 00101 00100 B
3386               C      NWM48,100                                11  20011  C 32989 00100
3387               BE     PL-19          SHOULD BRANCH             7  20022  J 20043 S
3388               B      TYPCK                                    7  20029  J 01074
3389               DCW    @#19.62@,G                               6  20041
3390               BNQ    AA             TEST FOR INQUIRY REQUEST  7  20043  J 01160 Q
3391               BBE    PK,TAD1,1                               12  20050  W 19963 01001 1
3392      SUB-RTN 19.63   CHECK MRZWM
3393    PL         MLCWS  NWM62,100                                12  20062  D 33003 00100 7
3394               MLCWS  ONE,101                                  12  20074  D 33061 00101 7
3395               MLCWS  ALLBIT,102                               12  20086  D 33011 00102 7
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUC..ON	
3396		MRZWM	101,100		12	20098	D 00101 00100	L T
3397		C	NWM14,100		11	20110	C 32956 00100	
3398		BE	PM-19	SHOULD BRANCH	7	20121	J 20142 S	
3399		B	TYPCK		7	20128	J 01074	
3400		DCW	a#19.63a,G		6	20140		
3401		BNQ	AA	TEST FOR INQUIRY REQUEST	7	20142	J 01160 Q	
3402		BBE	PL,TAD1,1		12	20149	W 20062 01001 1	
3403	SUB-RTN	19.64	CHECK MRCWM					
3404	PM	MLCWS	NWM15,100		12	20161	D 32957 00100	7
3405		MLCWS	AMPSND,101		12	20173	D 33012 00101	7
3406		MLCWS	RCUMRK,102		12	20185	D 33051 00102	7
3407		MRCWM	101,100		12	20197	D 00101 00100	G M
3408		C	NWM48,100		11	20209	C 32989 00100	
3409		BE	QG-19	SHOULD BRANCH	7	20220	J 20241 S	
3410		B	TYPCK		7	20227	J 01074	
3411		DCW	a#19.64a,G		6	20239		
3412		BNQ	AA	TEST FOR INQUIRY REQUEST	7	20241	J 01160 Q	
3413		BBE	PM,TA01,1		12	20248	W 20161 01001 1	

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PGLIN   LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3415      ROUTINE 22.00  TEST TABLE LOOK UP INSTRUCTION
3416
3417      SUB-RTN 22.01  TEST LOOK UP TO END OF TABLE
3418    QG        LND    ENDITM,ENDTBL                                    12  20260  T 33624 33691
3419              SAR    HOLDA3                                            7  20272  G 33949 A
3420              SBR    HOLDB3                                            7  20279  G 33954 B
3421              BE     QH                 SHOULD NOT BRANCH              7  20286  J 20350 S
3422              BL     QH                 SHOULD NOT BRANCH              7  20293  J 20350 T
3423              BH     *&8                SHOULD BRANCH, LOOK UP TO      7  20300  J 20314 U
3424                                        END OF TABLE SETS HI COMP IND
3425              B      QH                                                7  20307  J 20350
3426              C      HOLDA3,ENDA                                      11  20314  C 33949 33622
3427              BU     QH                                                7  20325  J 20350 /
3428              C      HOLDB3,&ENDITM                                   11  20332  C 33954 01404
3429              BE     QI-19                                             7  20343  J 20364 S
3430    QH        B      TYPCK                                             7  20350  J 01074
3431              DCW    @#22.01@,G                                        6  20362
3432              BNQ    AA                 TEST FOR INQUIRY REQUEST       7  20364  J 01160 Q
3433              BBE    QG,TAD1,1                                        12  20371  W 20260 01001 1
3434      SUB-RTN 22.02  TEST LOOK UP LOW
3435    QI        LL     T01,LTBL                                         12  20383  T 33698 33708 1
3436              SAR    HOLDA3                                            7  20395  G 33949 A
3437              SBR    HOLDB3                                            7  20402  G 33954 B
3438              BL     *&8                SHOULD BRANCH                  7  20409  J 20423 T
3439              B      QI1                                               7  20416  J 20466
3440              C      HOLDA3,LLCON                                     11  20423  C 33949 33696
3441              BE     *&8                                               7  20434  J 20448 S
3442              B      QI1                                               7  20441  J 20466
3443              C      HOLDB3,&LSTP                                     11  20448  C 33954 01409
3444              BE     QJ-19              SHOULD BRANCH                  7  20459  J 20480 S
3445    QI1       B      TYPCK                                             7  20466  J 01074
3446              DCW    @#22.02@,G                                        6  20478
3447              BNQ    AA                 TEST FOR INQUIRY REQUEST       7  20480  J 01160 Q
3448              BBE    QI,TAD1,1                                        12  20487  W 20383 01001 1
3449      SUB-RTN 22.03  TEST LOOK UP EQUAL
3450    QJ        LE     T02,ETBL                                         12  20499  T 33710 33720 2
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3451                SBR    HOLDB3                                           7  20511  G 33954 B
3452                BU     *&19              SHOULD NOT BRANCH              7  20518  J 20543 /
3453                C      HOLDB3,&ESTP                                    11  20525  C 33954 01414
3454                BE     QK-19             SHOULD BRANCH                  7  20536  J 20557 S
3455                B      TYPCK                                            7  20543  J 01074
3456                DCW    @#22.03@,G                                       6  20555
3457                BNQ    AA                TEST FOR INQUIRY REQUEST       7  20557  J 01160 Q
3458                BBE    QJ,TAD1,1                                       12  20564  W 20499 01001 1
3459      SUB-RTN 22.04    TEST LOOK UP LOW OR EQUAL, STOP ON LOW
3460      QK        LLE    T03,LETBL1                                      12  20576  T 33722 33729 3
3461                SBR    HOLDB3                                           7  20588  G 33954 B
3462                BL     *&8               SHOULD BRANCH                  7  20595  J 20609 T
3463                B      *&19                                             7  20602  J 20627
3464                C      HOLDB3,&LESTP1                                  11  20609  C 33954 01419
3465                BE     QL-19                                            7  20620  J 20641 S
3466                B      TYPCK                                            7  20627  J 01074
3467                DCW    @#22.04@,G                                       6  20639
3468                BNQ    AA                TEST FOR INQUIRY REQUEST       7  20641  J 01160 Q
3469                BBE    QK,TAD1,1                                       12  20648  W 20576 01001 1
3470      SUB-RTN 22.05    TEST LOOK UP LOW OR EQUAL, STOP ON EQUAL
3471      QL        LLE    T03,LETBL2                                      12  20660  T 33722 33736 3
3472                SBR    HOLDB3                                           7  20672  G 33954 B
3473                BU     *&19              SHOULD NOT BRANCH              7  20679  J 20704 /
3474                C      HOLDB3,&LESTP2                                  11  20686  C 33954 01424
3475                BE     QM-19             SHOULD BRANCH                  7  20697  J 20718 S
3476                B      TYPCK                                            7  20704  J 01074
3477                DCW    @#22.05@,G                                       6  20716
3478                BNQ    AA                TEST FOR INQUIRY REQUEST       7  20718  J 01160 Q
3479                BBE    QL,TAD1,1                                       12  20725  W 20660 01001 1
3480      SUB-RTN 22.06    TEST LOOK UP HIGH
3481      QM        LH     T04,HTBL                                        12  20737  T 33738 33748 4
3482                SBR    HOLDB3                                           7  20749  G 33954 B
3483                BH     *&8               SHOULD BRANCH                  7  20756  J 20770 U
3484                B      *&19                                             7  20763  J 20788
3485                C      HOLDB3,&HSTP                                    11  20770  C 33954 01429
3486                BE     QN-19             SHOULD BRANCH                  7  20781  J 20802 S
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3487                B      TYPCK                                            7  20788  J 01074
3488                DCW    @#22.06@,G                                       6  20800
3489                BNQ    AA                 TEST FOR INQUIRY REQUEST      7  20802  J 01160 Q
3490                BBE    QM,TAD1,1                                       12  20809  W 20737 01001 1
3491       SUB-RTN 22.07   TEST LOOK UP LOW OR HIGH, STOP ON LOW
3492     QN         LLH    T05,LHTBL1                                      12  20821  T 33750 33757 5
3493                SBR    HOLDB3                                           7  20833  G 33954 B
3494                BL     *&8                SHOULD BRANCH                 7  20840  J 20854 T
3495                B      *&19                                             7  20847  J 20872
3496                C      HOLDB3,&LHSTP1                                  11  20854  C 33954 01434
3497                BE     QP-19              SHOULD BRANCH                 7  20865  J 20886 S
3498                B      TYPCK                                            7  20872  J 01074
3499                DCW    @#22.07@,G                                       6  20884
3500                BNQ    AA                 TEST FOR INQUIRY REQUEST      7  20886  J 01160 Q
3501                BBE    QN,TAD1,1                                       12  20893  W 20821 01001 1
3502       SUB-RTN 22.08   TEST LOOK UP LOW OR HIGH, STOP ON HIGH
3503     QP         LLH    T05,LHTBL2                                      12  20905  T 33750 33764 5
3504                SBR    HOLDB3                                           7  20917  G 33954 B
3505                BH     *&8                SHOULD BRANCH                 7  20924  J 20938 U
3506                B      *&19                                             7  20931  J 20956
3507                C      HOLDB3,&LHSTP2                                  11  20938  C 33954 01439
3508                BE     QQ-19              SHOULD BRANCH                 7  20949  J 20970 S
3509                B      TYPCK                                            7  20956  J 01074
3510                DCW    @#22.08@,G                                       6  20968
3511                BNQ    AA                 TEST FOR INQUIRY REQUEST      7  20970  J 01160 Q
3512                BBE    QP,TAD1,1                                       12  20977  W 20905 01001 1
3513       SUB-RTN 22.09   TEST LOOK UP EQUAL OR HIGH, STOP ON EQUAL
3514     QQ         LEH    T06,EHTBL1                                      12  20989  T 33766 33773 6
3515                SBR    HOLDB3                                           7  21001  G 33954 B
3516                BU     *&19               SHOULD NOT BRANCH             7  21008  J 21033 /
3517                C      HOLDB3,&EHSTP1                                  11  21015  C 33954 01444
3518                BE     QR-19              SHOULD BRANCH                 7  21026  J 21047 S
3519                B      TYPCK                                            7  21033  J 01074
3520                DCW    @#22.09@,G                                       6  21045
3521                BNQ    AA                 TEST FOR INQUIRY REQUEST      7  21047  J 01160 Q
3522                BBE    QQ,TAD1,1                                       12  21054  W 20989 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
3523        SUB-RTN 22.10   TEST LOOK UP EQUAL OR HIGH, STOP ON HIGH
3524      QR           LEH  T06,EHTBL2                       12  21066  T 33766 33780 6
3525                   SBR  HOL0B3                           7  21078  G 33954 B
3526                   BH   *&8                 SHOULD BRANCH 7  21085  J 21099 U
3527                   B    *&19                             7  21092  J 21117
3528                   C    HOL0B3,&EHSTP2                  11  21099  C 33954 01449
3529                   BE   QS-19               SHOULD BRANCH 7  21110  J 21131 S
3530                   B    TYPCK                            7  21117  J 01074
3531                   OCW  a#22.10a,G                       6  21129
3532                   BNQ  AA                  TEST FOR INQUIRY REQUEST 7  21131  J 01160 Q
3533                   BBE  QR,TA01,1                       12  21138  W 21066 01001 1
3534        SUB-RTN 22.11   TEST LOOK UP ANY, STOP ON LOW
3535      QS           LA   T07,ANY1&2                      12  21150  T 33782 33786 7
3536                   SBR  HOL0B3                           7  21162  G 33954 B
3537                   BL   *&8                 SHOULD BRANCH 7  21169  J 21183 T
3538                   B    *&19                             7  21176  J 21201
3539                   C    HOL0B3,&ANY1                    11  21183  C 33954 01454
3540                   BE   QT-19               SHOULD BRANCH 7  21194  J 21215 S
3541                   B    TYPCK                            7  21201  J 01074
3542                   OCW  a#22.11a,G                       6  21213
3543                   BNQ  AA                  TEST FOR INQUIRY REQUEST 7  21215  J 01160 Q
3544                   BBE  QS,TA01,1                       12  21222  W 21150 01001 1
3545        SUB-RTN 22.12   TEST LOOK UP ANY, STOP ON EQUAL
3546      QT           LA   T07,ANY2&2                      12  21234  T 33782 33790 7
3547                   SBR  HOL0B3                           7  21246  G 33954 B
3548                   BU   *&19                SHOULD NOT BRANCH 7  21253  J 21278 /
3549                   C    HOL0B3,&ANY2                    11  21260  C 33954 01459
3550                   BE   QU-19               SHOULD BRANCH 7  21271  J 21292 S
3551                   B    TYPCK                            7  21278  J 01074
3552                   OCW  a#22.12a,G                       6  21290
3553                   BNQ  AA                  TEST FOR INQUIRY REQUEST 7  21292  J 01160 Q
3554                   BBE  QT,TA01,1                       12  21299  W 21234 01001 1
3555        SUB-RTN 22.13   TEST LOOK UP ANY, STOP ON HIGH
3556      QU           LA   T07,ANY3&2                      12  21311  T 33782 33794 7
3557                   SBR  HOL0B3                           7  21323  G 33954 B
3558                   BH   *&8                 SHOULD BRANCH 7  21330  J 21344 U
```

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3559		B	*&19		7	21337	J 21362
3560		C	HOLDB3,&ANY3		11	21344	C 33954 01464
3561		BE	QV-19	SHOULD BRANCH	7	21355	J 21376 S
3562		B	TYPCK		7	21362	J 01074
3563		DCW	@#22.13@,G		6	21374	
3564		BNQ	AA	TEST FOR INQUIRY REQUEST	7	21376	J 01160 Q
3565		BBE	QU,TAD1,1		12	21383	W 21311 01001 1

```
PGLIN   LABEL     OPCOO  OPERAND                                                  CT  AOORS  INSTRUCTION

3567      ROUTINE 23.00  TEST MULTIPLY OPERATION
3568
3569      SUB-RTN 23.01  MULTIPLY ALL 64 CHARACTERS BY EACH OTHER.
3570                     CHECK RESULTS FOR PROPER SIGN, ZERO BALANCE,
3571                     AND THAT PRODUCT OF M X N EQUALS N X M.
3572
3573                     BECAUSE THE TIME REQUIRED TO PERFORM THIS ROUTINE
3574                     IS RELATIVELY LONG, IT IS OONE ONLY THE FIRST
3575                     TIME THROUGH ANO THEREAFTER ONLY WHEN THE PASS
3576                     COUNT WORK AREA IS REOUCEO TO ZERO.
3577
3578    QV        NOPWM                                                          1  21395  N
3579              B      QW                                                      7  21396  J 22541
3580              CW     QVERSW&1                                                6  21403  ¤ 22501
3581              MLCWA  &04096,X14        INDEX REG 14 USED ONLY AS COUNTER    12  21409  O 01469 00094 X
3582              MLCWA  &00064,X12                                             12  21421  O 01474 00084 X
3583    QVA       MLCWA  &00064,X13                                             12  21433  O 01474 00089 X
3584              MLCS   MPYTBL&X12,WORK7                                       12  21445  O 34A53 33582 3
3585    QVB       MLCS   MPYTBL&X13,WORK8                                       12  21457  D 34AV3 33583 3
3586              ZA     WORK7,WORK9       TEST ONE FACTOR FOR ZERO NUMERIC     11  21469  QM 33582 33584
3587              BZ     QVI                                                    7  21480  J 21720 V
3588              ZA     WORK8,WORK9       TEST OTHER FACTOR FOR ZERO NUM       11  21487  QM 33583 33584
3589              BZ     QVI                                                    7  21498  J 21720 V
3590              CW     QVE&1             SET UP FOR NON-ZERO PRODUCT           6  21505  ¤ 21577
3591    QVC       BZN    QVJ,WORK7,-       TEST ONE FACTOR FOR NEGATIVE SIGN    12  21511  V 21744 33582 K
3592              BZN    QVK,WORK8,-       TEST OTHER FACTOR FOR NEG SIGN       12  21523  V 21756 33583 K
3593    QVD       CW     QVF&1             SET UP FOR POSITIVE PRODUCT           6  21535  ¤ 21592
3594    QVD1      MLCWS  WORK7,P1-2                                             12  21541  O 33582 33955 7
3595    QVD2      MLCWS  WORK8,P2-2                                             12  21553  D 33583 33958 7
3596
3597              M      WORK7,P2          MULTIPLY FACTOR1 BY FACTOR2          11  21565  @ 33582 33960
3598    QVE       NOPWM                                                          1  21576  N
3599              B      QVL               BRANCH IF ZERO PROD ANTICIPATED       7  21577  J 21769
3600              BZ     QVM               SHOULD NOT BRANCH                     7  21584  J 21907 V
3601    QVF       NOPWM                                                          1  21591  N
3602              B      QVN               BRANCH IF NEGATIVE PROD EXPECTED      7  21592  J 22036
```

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PGLIN  LABEL   OPCOD  OPERAND          CT  ADDRS  INSTRUCTION
3603           BZN    QVP,P2,-         12  21599  V 22178 33960 K
3604   QVG     M      WORK8,P1         11  21611  @ 33583 33957
3605           C      P1,P2            11  21622  C 33957 33960
3606           BU     QVQ               7  21633  J 22308 /
3607           BNQ    AA                7  21640  J 01160 Q
3608           BBE    QVB-12,TAD1,1    12  21647  W 21445 01001 1
3609   QVH     S      &1,X14           11  21659  S 01300 00094
3610           BZ     QVR               7  21670  J 22535 V
3611           S      &1,X13           11  21677  S 01300 00089
3612           BZ     *&8               7  21688  J 21702 V
3613           B      QVB               7  21695  J 21457
3614           S      &1,X12           11  21702  S 01300 00084
3615           B      QVA               7  21713  J 21433
3616
3617   QVI     SW     QVE&1             6  21720  . 21577
3618           ZA     &1,WORK9         11  21726  M 01300 33584
3619           B      QVC               7  21737  J 21511
3620
3621   QVJ     BZN    QVD,WORK8,-      12  21744  V 21535 33583 K
3622   QVK     SW     QVF&1             6  21756  . 21592
3623           B      QVC1              7  21762  J 21541
3624
3625   QVL     BZ     QVF               7  21769  J 21591 V
3626           B      QVERR             7  21776  J 22481
3627           BBE    ERSKP1,TAD0,1    12  21783  W 21861 01000 1
3628           MLCS   WORK7,ZROMSG&1    12  21795  D 33582 21839 3
3629           MLCS   WORK8,ZROMSG&2    12  21807  D 33583 21840 3
3630           MLCB   P2,ZROMSG&11      12  21819  D 33960 21849 L
3631           B      TYPE              7  21831  J 01029
3632   ZROMSG  DCW    @ ** PROD &       9  21838
3633           @***; S/B ZERO@,G        13  21859
3634   ERSKP1  BBE    *&8,TAD2,1       12  21861  W 21880 01002 1
3635           B      *&2               7  21873  J 21881
3636           H                        1  21880  .
3637           BNQ    AA                7  21881  J 01160 Q
3638           BBE    QVD2,TAD1,1      12  21888  W 21553 01001 1
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PGLIN  LABEL    OPCOD  OPERAND                        CT  ADDRS  INSTRUCTION
3639            B      QVF                             7  21900  J 21591
3640
3641    QVM     B      QVERR                           7  21907  J 22481
3642            BBE    ERSKP2,TADC,1                  12  21914  W 21990 01000 1
3643            MLCS   WORK7,NZMSG&1                  12  21926  D 33582 21970 3
3644            MLCS   WORK8,NZMSG&2.                 12  21938  D 33583 21971 3
3645            MLCB   P2,NZMSG&11                    12  21950  D 33960 21980 L
3646            B      TYPE                            7  21962  J 01029
3647     NZMSG  DCW    @ ** PROD @       ASTERISKS FILLED IN  9  21969
3648                   @***; S/B NZ@,G      BY ERROR ROUTINE 11  21988
3649    ERSKP2  BBE    *&8,TAD2,1                     12  21990  W 22009 01002 1
3650            B      *&2                             7  22002  J 22010
3651            H                                      1  22009  .
3652            BNQ    AA                TEST FOR INQUIRY REQUEST  7  22010  J 01160 Q
3653            BBE    QVD2,TAD1,1                    12  22017  W 21553 01001 1
3654            B      QVF                             7  22029  J 21591
3655
3656    QVN     BZN    QVG,P2,-          SHOULD BRANCH  12  22036  V 21611 33960 K
3657            B      QVERR                           7  22048  J 22481
3658            BBE    ERSKP3,TADC,1                  12  22055  W 22132 01000 1
3659            MLCS   WORK7,NEGMSG&1                 12  22067  D 33582 22111 3
3660            MLCS   WORK8,NEGMSG&2                 12  22079  D 33583 22112 3
3661            MLCB   P2,NEGMSG&11                   12  22091  D 33960 22121 L
3662            B      TYPE                            7  22103  J 01029
3663     NEGMSG DCW    @ ** PROD @       ASTERISKS FILLED IN  9  22110
3664                   @***; S/B NEG@,G     BY ERROR ROUTINE 12  22130
3665    ERSKP3  BBE    *&8,TAD2,1                     12  22132  W 22151 01002 1
3666            B      *&2                             7  22144  J 22152
3667            H                                      1  22151  .
3668            BNQ    AA                TEST FOR INQUIRY REQUEST  7  22152  J 01160 Q
3669            BBE    QVD2,TAD1,1                    12  22159  W 21553 01001 1
3670            B      QVG                             7  22171  J 21611
3671
3672    QVP     B      QVERR                           7  22178  J 22481
3673            BBE    ERSKP4,TADC,1                  12  22185  W 22262 01000 1
3674            MLCS   WORK7,POSMSG&1                 12  22197  D 33582 22241 3
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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
3675                MLCS   WORK8,POSMSG&2                   12  22209  D 33583 22242 3
3676                MLCB   P2,POSMSG&11                     12  22221  D 33960 22251 L
3677                B      TYPE                              7  22233  J 01029
3678      POSMSG    DCW    @ ** PROD @        ASTERISKS FILLED IN  9  22240
3679                       @***; S/B POS@,G      BY ERROR ROUTINE 12  22260
3680      ERSKP4    BBE    *&8,TAD2,1                       12  22262  W 22281 0100 1
3681                B      *&2                               7  22274  J 22282
3682                H                                        1  22281  .
3683                BNQ    AA                 TEST FOR INQUIRY REQUEST  7  22282  J 01160 Q
3684                BBE    QVD2,TAD1,1                      12  22289  W 21553 0100 1
3685                B      QVG                               7  22301  J 21611
3686
3687      QVQ       B      QVERR                             7  22308  J 22481
3688                BBE    ERSKP5,TAD0,1                    12  22315  W 22435 01000 1
3689                MLCS   WORK7,NEQMSG&1                   12  22327  D 33582 22407 3
3690                MLCS   WORK8,NEQMSG&2                   12  22339  D 33583 22408 3
3691                MLCB   P2,NEQMSG&11                     12  22351  D 33960 22417 L
3692                MLCS   WORK8,NEQMSG&17                  12  22363  D 33583 22423 3
3693                MLCS   WORK7,NEQMSG&18                  12  22375  D 33582 22424 3
3694                MLCB   P1,NEQMSG&27                     12  22387  D 33957 22433 L
3695                B      TYPE                              7  22399  J 01029
3696      NEQMSG    DCW    @ ** PROD @        ASTERISKS    9  22406
3697                       @***; NE ** PROD @   FILLED IN BY 16  22430
3698                       @***@,G                ERROR ROUTINE  3  22433
3699      ERSKP5    BBE    *&8,TAD2,1                       12  22435  W 22454 01002 1
3700                B      *&2                               7  22447  J 22455
3701                H                                        1  22454  .
3702                BNQ    AA                 TEST FOR INQUIRY REQUEST  7  22455  J 01160 Q
3703                BBE    QVD1,TAD1,1                      12  22462  W 21541 01001 1
3704                B      QVH                               7  22474  J 21659
3705
3706      QVERR     SBR    QVEXIT&5                          7  22481  G 22533 B
3707                BBE    QVEXIT,TAD0,1                    12  22488  W 22528 01000 1
3708      QVERSW    NOPWM                                    1  22500  N
3709                B      QVEXIT                            7  22501  J 22528
3710                SW     *-12                              6  22508  , 22501
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PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
3711		B	TYPE	7	22514	J 01029
3712		DCW	@#23.01@,G	6	22526	
3713	QVEXIT	B	0	7	22528	J 00000
3714	QVR	SW	QV&1	6	22535	, 21396

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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
3716        SUB-RTN 23.02   MAMMOTH MULTIPLY.  MAXIMUM CYCLES AND CARRYS
3717      QW           MLCA  FIVE4S,BIGANS-17                                 12  22541  D 34070 34135 T
3718                   M     MANY9S,BIGANS                                    11  22553  @ 34086 34152
3719                   C     BIGANS,PRODCT                                    11  22564  C 34152 34119
3720                   BE    QX-19                                             7  22575  J 22596 S
3721                   B     TYPCK                                             7  22582  J 01074
3722                   DCW   @#23.02@,G                                        6  22594
3723                   BNQ   AA                 TEST FOR INQUIRY REQUEST      7  22596  J 01160 Q
3724                   BBE   QW,TAD1,1                                        12  22603  W 22541 01001 1
3725        SUB-RTN 23.03   CHECK ADDRESS REGISTERS FOLLOWING MULTIPLY
3726      QX           ZA    FIVE4S-13,BIGANS-30                              11  22615  Q
                                                                                         M 34057 34122
3727                   M     MANY9S-15,BIGANS-28  A-FLD LENGTH 1, B-FLD LENGTH 5  11  22626  @ 34071 34124
3728                   SAR   HOLDA3                                            7  22637  G 33949 A
3729                   SBR   HOLDB3                                            7  22644  G 33954 B
3730                   C     HOLDA3,K16                                       11  22651  C 33949 33107
3731                   BU    *&19               SHOULD NOT BRANCH             7  22662  J 22687 /
3732                   C     HOLDB3,K17                                       11  22669  C 33954 33112
3733                   BE    QY-19              SHOULD BRANCH                 7  22680  J 22701 S
3734                   B     TYPCK                                             7  22687  J 01074
3735                   DCW   @#23.03@,G                                        6  22699
3736                   BNQ   AA                 TEST FOR INQUIRY REQUEST      7  22701  J 01160 Q
3737                   BBE   QX,TAD1,1                                        12  22708  W 22615 01001 1
3738        SUB-RTN 23.04   SIMILAR TO #23.03 WITH FIELD LENGTHS REVERSED
3739      QY           ZA    MANY9S-15,BIGANS-32                              11  22720  Q
                                                                                         M 34071 34120
3740                   M     FIVE4S-13,BIGANS-28  A-FLD LENGTH 3, B-FLD LENGTH 5  11  22731  @ 34057 34124
3741                   SAR   HOLDA3                                            7  22742  G 33949 A
3742                   SBR   HOLDB3                                            7  22749  G 33954 B
3743                   C     HOLDA3,K18                                       11  22756  C 33949 33117
3744                   BU    *&19               SHOULD NOT BRANCH             7  22767  J 22792 /
3745                   C     HOLDB3,K17                                       11  22774  C 33954 33112
3746                   BE    RA-19              SHOULD BRANCH & EXIT ROUTINE HERE  7  22785  J 22806 S
3747                   B     TYPCK                                             7  22792  J 01074
3748                   DCW   @#23.04@,G                                        6  22804
3749                   BNQ   AA                 TEST FOR INQUIRY REQUEST      7  22806  J 01160 Q
3750                   BBE   QY,TAD1,1                                        12  22813  W 22720 01001 1
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3752       ROUTINE 24.00  TEST DIVIDE OPERATION
3753
3754       SUB-RTN 24.01  INSURE DIVIDE OVERFLOW OFF
3755     RA        BDV    *&1                TURN OFF DIV OFLOW             7  22825  J 22832 W
3756               BDV    *&8                SHOULD NOT BRANCH              7  22832  J 22846 W
3757               B      RB-19                                             7  22839  J 22860
3758               B      TYPCK                                             7  22846  J 01074
3759               OCW    @#24.01@,G                                        6  22858
3760               BNQ    AA                 TEST FOR INQUIRY REQUEST       7  22860  J 01160 Q
3761               BBE    RA,TAD1,1                                        12  22867  W 22825 01001 1
3762       SUB-RTN 24.02  DIVIDE NUMBERS 0 THRU 9 BY NUMBERS 1 THRU 9
3763     RB        CW     RBERSW&1           RESET ERROR SWITCH             6  22879  ¤ 23137
3764               MLCWA  -00009,X9          INITIALIZE INDEX REGS 9 & 10  12  22885  D 01479 00069 X
3765     RBA       MLCWA  -00010,X10                                       12  22897  D 01484 00074 X
3766     RBA1      ZA     DTABLE&1&X9,DIVSOR  GET DIVISOR FROM TABLE        11  22909  QM 33Q+5 33582
3767     RBB       ZA     DTABLE&1&X10,DIVDND  GET DIVIDEND FROM TABLE      11  22920  QM 33Q.5 33583
3768     RBC       ZA     DIVDND,QUOREM      PUT DIVIDEND IN QUOT-REMNDR FIELD 11  22931  QM 33583 33957
3769               D      DIVSOR,QUOREM      PERFORM 1-CHARACTER DIVISION   11  22942  % 33582 33957
3770               BDV    RBD                SHOULD NEVER BRANCH            7  22953  J 23091 W
3771               ZA     QUOREM-2,QUOTNT    SAVE THE QUOTIENT              11  22960  QM 33955 33585
3772               ZA     QUOREM,WORK9       SAVE THE REMAINDER             11  22971  QM 33957 33584
3773               M      DIVSOR,QUOREM      MULTIPLY DIVISOR AND QUOTIENT  11  22982  @ 33582 33957
3774               A      WORK9,QUOREM       ADD REMAINDER TO PRODUCT       11  22993  A 33584 33957
3775               C      QUOREM,DIVDND      TEST FOR EQUALITY              11  23004  C 33957 33583
3776               BU     RBE                SHOULD NOT BRANCH              7  23015  J 23111 /
3777               BNQ    AA                 TEST FOR INQUIRY REQUEST       7  23022  J 01160 Q
3778               BBE    RBC,TAD1,1                                       12  23029  W 22931 01001 1
3779               A      &1,X10                                           11  23041  A 01300 00074
3780               BZ     *&8                                               7  23052  J 23066 V
3781               B      RBB                                               7  23059  J 22920
3782               A      &1,X9                                            11  23066  A 01300 00069
3783               BZ     RBG                                               7  23077  J 23431 V
3784               B      RBA                                               7  23084  J 22897
3785
3786     RBD       SBR    XB                                                7  23091  G 00064 B
3787               SW     RBOFLO&1           SET SW TO IND DIV OFLOW OCCURRED 6  23098  , 23165
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PGLIN   LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3788             B      RBERR                                             7  23104  J 23124
3789
3790    RBE      S8R    X8                                                7  23111  G 00064 B
3791             CW     RBOFLO&1          SET SW TO IND COMP UNEQUAL OCC  6  23118  ¤ 23165
3792
3793    RBERR    B8E    R8CFLO,TADO,1                                    12  23124  W 23164 01000 1
3794    RBERSW   NOPWM                                                    1  23136  N
3795             8      RBOFLO                                            7  23137  J 23164
3796             SW     *-12                                              6  23144  , 23137
3797             B      TYPE                                              7  23150  J 01029
3798             DCW    @#24.02@,G                                        6  23162
3799    RBOFLO   NOPWM                                                    1  23164  N
3800             B      RBF               BRANCH IF ERROR WAS DIV OFLOW   7  23165  J 23357
3801             88E    ERSKP6,TADO,1                                    12  23172  W 23311 01000 1
3802             MLCS   DIVDNO,DVMSG1&1                                  12  23184  0 33583 23276 3
3803             MLCS   DIVSOR,DVMSG1&3                                  12  23196  D 33582 23278 3
3804             MLCS   QUOTNT,OVMSG1&8                                  12  23208  D 33585 23283 3
3805             MLCS   WORK9,OVMSG1&15                                  12  23220  D 33584 23290 3
3806             MLCS   DIVSOR,OVMSG1&23                                 12  23232  D 33582 23298 3
3807             MLCS   QUOTNT,OVMSG1&26                                 12  23244  0 33585 23301 3
3808             MLCS   WORK9,DVMSG1&34                                  12  23256  D 33584 23309 3
3809             B      TYPE                                              7  23268  J 01029
                                                  L RL R
3810     DVMSG1  DCW    @ */* EQ *, REM *, NEQ B*BB*B PLUS *@,G          35  23275
3811    ERSKP6   88E    *&8,TAD2,1                                       12  23311  W 23330 01002 1
3812             8      *&2                                               7  23323  J 23331
3813             H                                                        1  23330  .
3814             8NQ    AA                                                7  23331  J 01160 Q
3815             88E    RBC,TAD1,1                                       12  23338  W 22931 01001 1
3816             B      0&X8                                              7  23350  J 00.00
3817
3818    RBF      88E    ERSKP6,TAOO,1                                    12  23357  W 23311 01000 1
3819             MLCS   DIVDNO,DVMSG2&3                                  12  23369  0 33583 23403 3
3820             MLCS   DIVSOR,OVMSG2&5                                  12  23381  D 33582 23405 3
3821             8      TYPE                                              7  23393  J 01029
3822     OVMSG2  DCW    @ 00*/* CAUSED DIV OFLOW@,G                      23  23400
3823             B      ERSKP6                                            7  23424  J 23311
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PGLIN    LABEL      OPCOD  OPERAND                                                CT  ADDRS  INSTRUCTION

3824
3825     RBG        ZS     R8A1   . THESE THREE OPERATIONS CHANGE THE OP CODES     6  23431  : 22909
3826                ZS     *&1    . AT R8A1 & RB8 SO THAT IN FOUR PASSES ALL       6  23437  : 23443
3827                ZS     R88    . PLUS & MINUS NO.S ARE DIVIDED BY EACH OTHER    6  23443  : 22920
3828       SUB-RTN 24.03  CHECK DIVICE OVERFLOW
3829     RC         8CV    *&1                                                    7  23449  J 23456 W
3830                ZA     *-10,QUOREM        ZERO OUT DIVIDEND-QUOTIENT FIELD   11  23456  QMQ 23456 33957
3831                ZA     *-10,DIVSOR        PUT ZERD IN DIVISOR                11  23467  QM 23467 33582
3832                D      DIVSOR,QUOREM      DIVIDE ZERO BY ZERO                11  23478  % 33582 33957
3833                8CV    *&8                SHOULD BRANCH & TURN OFF DIV OFLO   7  23489  J 23503 W
3834                8      *&15                                                   7  23496  J 23517
3835                8DV    *&8                SHOULD NDT BRANCH NDW              7  23503  J 23517 W
3836                8      RD-19              EXIT ROUTINE HERE                  7  23510  J 23531
3837                8      TYPCK                                                  7  23517  J 01074
3838                DCW    @#24.03@,G                                             6  23529
3839                8NQ    AA                 TEST FOR INQUIRY REQUEST           7  23531  J 01160 Q
3840                88E    RC,TAD1,1                                             12  23538  W 23449 01001 1
3841       SUB-RTN 24.04  TEST 8-BIT RECOGNITION CKTS
3842     RD         MLCWA  @‡‡YI@,WDRK11      NUMERIC 0089, ZDNES A A A BA       12  23550  D 01488 33589 X
3843                D      -8,WDRK11-1        DIVIDE ‡‡YI BY MINUS 8             11  23562  % 01290 33588
3844                C      WORK11,@/J‡A@                                         11  23573  C 33589 01492
3845                8E     RE-19              SHOULD BRANCH EQUAL                7  23584  J 23605 S
3846                8      TYPCK                                                  7  23591  J 01074
3847                DCW    @#24.04@,G                                             6  23603
3848                BNQ    AA                 TEST FOR INQUIRY REQUEST           7  23605  J 01160 Q
3849                B8E    RD,TAD1,1                                             12  23612  W 23550 01001 1
3850       SUB-RTN 24.05  INSURE ND INTERFERENCE BY WDMKS IN B-FIELD
3851     RE         ZS     -8,WORK11                                             11  23624  : 01290 33589
3852                SW     WORK11,WORK11-1                                       11  23635  , 33589 33588
3853                D      -8,WORK11                                             11  23646  % 01290 33589
3854                8W     *&8,WDRK11         TEST UNITS POS FDR WM              12  23657  V 23676 33589 1
3855                8      RF                 SHOULD NOT TAKE THIS ONE           7  23669  J 23724
3856                8W     *&8,WORK11-1       TEST TENS PDS FDR WM               12  23676  V 23695 33588 1
3857                8      RF                 SHOULD NOT TAKE THIS ONE, EITHER   7  23688  J 23724
3858                CW     WORK11,WORK11-1                                       11  23695  ¤ 33589 33588
3859                C      WORK11,@0JQM@                                         11  23706  C 33589 01496
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3860                 BE     RG-19              EXIT ROUTINE HERE     7  23717  J 23749 S
3861      RF         B      TYPCK                                    7  23724  J 01074
3862                 DCW    @#24.05@,G                               6  23736
3863                 CW     WORK11,WORK11-1                         11  23738  ¤ 33589 33588
3864                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  23749  J 01160 Q
3865                 BBE    RE,TAD1,1                               12  23756  W 23624 01001 1
3866        SUB-RTN 24.06   PERFORM DIABOLIC DIVIDE
3867      RG         ZA     K19,BIGANS-2                            11  23768  M 33137 34150
3868                 D      K20,BIGANS-21                           11  23779  % 33147 34131
3869                 C      BIGANS-2,K21                            11  23790  C 34150 33178
3870                 BE     RH-19                                    7  23801  J 23822 S
3871                 B      TYPCK                                    7  23808  J 01074
3872                 DCW    @#24.06@,G                               6  23820
3873                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  23822  J 01160 Q
3874                 BBE    RG,TAD1,1                               12  23829  W 23768 01001 1
3875        SUB-RTN 24.07   CHECK ADDRESS REGISTERS FOLLOWING DIVIDE
3876      RH         ZA     DTABLE,WORK11                           11  23841  M 33804 33589
3877                 D      K20-8,WORK11                            11  23852  % 33139 33589
3878                 SAR    HOLDA3                                   7  23863  G 33949 A
3879                 SBR    HOLDB3                                   7  23870  G 33954 B
3880                 C      HOLDA3,K23                              11  23877  C 33949 33188
3881                 BU     *£19                                     7  23888  J 23913 /
3882                 C      HOLDB3,K22                              11  23895  C 33954 33183
3883                 BE     R1-19                                    7  23906  J 23927 S
3884                 B      TYPCK                                    7  23913  J 01074
3885                 DCW    @#24.07@,G                               6  23925
3886                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  23927  J 01160 Q
3887                 BBE    RH,TAD1,1                               12  23934  W 23841 01001 1
```

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3889	ROUTINE 25.00		CHECK OPERATION MOVE CHARACTERS & SUPPRESS ZEROS				
3890							
3891	SUB-RTN 25.01		TEST FOR ZONE BIT REMOVAL, UNITS POSN, B-FIELD				
3892	RI	ZS	-8,P1	PUT DATA IN AREA P1	11	23946	. 01290 33957
3893		MCS	-8,P1		11	23957	Z 01290 33957
3894		BZN	RJ-19,P1,	SHOULD BRANCH	12	23968	V 23994 33957 2
3895		B	TYPCK		7	23980	J 01074
3896		DCW	@#25.01@,G		6	23992	
3897		BNQ	AA	TEST FOR INQUIRY REQUEST	7	23994	J 01160 Q
3898		BBE	RI,TAD1,1		12	24001	W 23946 01001 1
3899	SUB-RTN 25.02		TEST THAT B-FIELD WORD MARKS ARE REMOVED BY MCS				
3900	RJ	SW	P1,P1-1	PLACE TWO WORD MARKS	11	24013	, 33957 33956
3901		MCS	@SS@@,P1		11	24024	Z 01498 33957
3902		BW	*&20,P1	SHOULD NOT BRANCH	12	24035	V 24066 33957 1
3903		BW	*&8,P1-1	SHOULD NOT BRANCH	12	24047	V 24066 33956 1
3904		B	RK-19		7	24059	J 24091
3905		B	TYPCK		7	24066	J 01074
3906		DCW	@#25.02@,G		6	24078	
3907		CW	P1,P1-1	INSURE WORD MARKS REMOVED	11	24080	¤ 33957 33956
3908		BNQ	AA	TEST FOR INQUIRY REQUEST	7	24091	J 01160 Q
3909		BBE	RJ,TAD1,1		12	24098	W 24013 01001 1
3910	SUB-RTN 25.03		CHECK PROPER OPERATION OF EDIT SKIP CYCLE				
3911	RK	MLCWA	@XX @-1,P1	PUT WM DATA IN P1 AREA	12	24110	D 01500 33957 X
3912		MCS	@SS@@-1,P1		11	24122	Z 01497 33957
3913		C	@XX @,P1		11	24133	C 01501 33957
3914		CW	P1-1	REMOVE WM FROM P1 AREA	6	24144	¤ 33956
3915		BE	RL-19	SHOULD BRANCH	7	24150	J 24171 S
3916		B	TYPCK		7	24157	J 01074
3917		DCW	@#25.03@,G		6	24169	
3918		BNQ	AA	TEST FOR INQUIRY REQUEST	7	24171	J 01160 Q
3919		BBE	RK,TAD1,1		12	24178	W 24110 01001 1
3920	SUB-RTN 25.04		TEST ZERO SUPPRESS LATCH ON AT START OF SECOND				
3921			SCAN AND NOT RESET BY DECIMAL PT OR MINUS SIGN				
3922	RL	BBE	*&30,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	24190	W 24231 01261 1
3923		MCS	K24,WORK12		11	24202	Z 33195 33597
3924		C	WORK12,K28		11	24213	C 33597 33237

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PGLIN    LABEL      OPCOD  OPERANO                                          CT  AODRS  INSTRUCTION

3925                B      *&23                                             7  24224  J 24253
3926                MCS    K24A,WORK12                                     11  24231  Z 33202 33597
3927                C      WORK12,K28A                                     11  24242  C 33597 33244
3928                BE     RM-19                                            7  24253  J 24274 S
3929                B      TYPCK                                            7  24260  J 01074
3930                DCW    @#25.04@,G                                       6  24272
3931                BNQ    AA                TEST FOR INQUIRY REQUEST       7  24274  J 01160 Q
3932                BBE    RL,TAD1,1                                       12  24281  W 24190 01001 1
3933      SUB-RTN 25.05    TEST ZERO SUPPRESS LATCH ON AT START OF SECOND
3934                       SCAN AND NCT RESET BY ZERO, BLANK OR COMMA
3935     RM         BBE    *&19,EEBIT,1      BRANCH IF EUROPEAN EOIT FEATURE 12  24293  W 24323 01261 1
3936                MCS    K25,WORK12                                      11  24305  Z 33208 33597
3937                B      *&12                                             7  24316  J 24334
3938                MCS    K25A,WORK12                                     11  24323  Z 33214 33597
3939                C      WORK12,K29                                      11  24334  C 33597 33250
3940                BE     RN-19                                            7  24345  J 24366 S
3941                B      TYPCK                                            7  24352  J 01074
3942                DCW    @#25.05@,G                                       6  24364
3943                BNQ    AA                TEST FOR INQUIRY REQUEST       7  24366  J 01160 Q
3944                BBE    RM,TAD1,1                                       12  24373  W 24293 01001 1
3945      SUB-RTN 25.06    TEST THAT FIRST SIGNIFICANT DIGIT TURNS OFF ZERO
3946                       SUPPRESS LATCH AND IT REMAINS OFF THROUGHOUT
3947     RN         MCS    K26,WORK12                                      11  24385  Z 33220 33597
3948                C      WORK12,K30                                      11  24396  C 33597 33256
3949                BE     RP-19                                            7  24407  J 24428 S
3950                B      TYPCK                                            7  24414  J 01074
3951                DCW    @#25.06@,G                                       6  24426
3952                BNQ    AA                TEST FOR INQUIRY REQUEST       7  24428  J 01160 Q
3953                BBE    RN,TAD1,1                                       12  24435  W 24385 01001 1
3954      SUB-RTN 25.07    TEST THAT FIRST NON-SIGNIFICANT DIGIT TURNS ON
3955                       ZERO SUPPRESS LATCH
3956     RP         BBE    *&30,EEBIT,1      BRANCH IF EUROPEAN EOIT FEATURE 12  24447  W 24488 01261 1
3957                MCS    K27,WORK12                                      11  24459  Z 33225 33597
3958                C      WORK12,K31                                      11  24470  C 33597 33261
3959                B      *&23                                             7  24481  J 24510
3960                MCS    K27A,WORK12                                     11  24488  Z 33230 33597
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

3961                C      WORK12,K31A                                      11  24499  C 33597 33266
3962                BE     RR-19                                             7  24510  J 24531 S
3963                B      TYPCK                                             7  24517  J 01074
3964                DCW    @#25.07@,G                                        6  24529
3965                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  24531  J 01160 Q
3966                BBE    RP,TAD1,1                                        12  24538  W 24447 01001 1
3967       SUB-RTN 25.08   CHECK ADDRESS REGISTERS FOLLOWING MCS INSTRUCTION
3968     RR         MCS    WORK11,WORK12                                    11  24550  Z 33589 33597
3969                SAR    HOLDA3                                            7  24561  G 33949 A
3970                SBR    HOLDB3                                            7  24568  G 33954 B
3971                C      HOLDA3,K22                                       11  24575  C 33949 33183
3972                BU     *&19               SHOULD NOT BRANCH              7  24586  J 24611 /
3973                C      HOLDB3,K32                                       11  24593  C 33954 33271
3974                BE     SA-19                                             7  24604  J 24625 S
3975                B      TYPCK                                             7  24611  J 01074
3976                DCW    @#25.08@,G                                        6  24623
3977                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  24625  J 01160 Q
3978                BBE    RR,TAD1,1                                        12  24632  W 24550 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
3980          ROUTINE 26.00  CHECK EDIT INSTRUCTION
3981                         ALL #26.XX ROUTINES END OPERATION AFTER 1ST SCAN
3982          SUB-RTN 26.01  CHECK MCE FOR PROPER STEPPING OF AAR AND BAR
3983     SA           MLCWA  &50,WORK13          PUT DATA IN WORK13           12  24644  D 01503 33599 X
3984                  SW     WORK13              MAKE CONTROL FIELD LENGTH 1 CHAR  6  24656  . 33599
3985                  MCE    WORK13-1,WCRK13                                  11  24662  E 33598 33599
3986                  SAR    HOLDA3                                            7  24673  G 33949 A
3987                  SBR    HOLDB3                                            7  24680  G 33954 B
3988                  C      HOLDA3,K33          CHECK AAR                    11  24687  C 33949 33276
3989                  BU     *&19                                              7  24698  J 24723 /
3990                  C      HOLDB3,K34          CHECK BAR                    11  24705  C 33954 33281
3991                  BE     SB-19               SHOULD BRANCH                 7  24716  J 24737 S
3992                  B      TYPCK                                             7  24723  J 01074
3993                  DCW    @#26.01@,G          IND EDIT POSS NOT STOP IN 1 SCAN  6  24735
3994                  BNQ    AA                  TEST FOR INQUIRY REQUEST      7  24737  J 01160 Q
3995                  BBE    SA,TAD1,1                                        12  24744  W 24644 01001 1
3996          SUB-RTN 26.02  CHECK WM ELIMINATION IN B-FLD AND MOVE NO DATA
3997     SB           MLCWA  &50,WORK13                                       12  24756  D 01503 33599 X
3998                  SW     WORK13                                            6  24768  . 33599
3999                  MCE    WORK13-1,WCRK13                                  11  24774  E 33598 33599
4000                  C      WORK13,&50                                       11  24785  C 33599 01503
4001                  BU     *&19                                              7  24796  J 24821 /
4002                  C      &50,WORK13                                       11  24803  C 01503 33599
4003                  BE     SC-19               SHOULD BRANCH                 7  24814  J 24835 S
4004                  B      TYPCK                                             7  24821  J 01074
4005                  DCW    @#26.02@,G                                        6  24833
4006                  BNQ    AA                  TEST FOR INQUIRY REQUEST      7  24835  J 01160 Q
4007                  BBE    SB,TAD1,1                                        12  24842  W 24756 01001 1
4008          SUB-RTN 26.03  CHECK REPLACEMENT OF AMPERSAND BY BLANK
4009     SC           MLCWA  @M&@,WORK13         CTL FLD AMPERSAND, DATA FLD GM  12  24854  D 01505 33599 X
                             G
4010                  SW     WORK13                                            6  24866  . 33599
4011                  MCE    WORK13-1,WCRK13                                  11  24872  E 33598 33599
4012                  SBR    HOLDB3                                            7  24883  G 33954 B
4013                  C      HOLDB3,K34                                       11  24890  C 33954 33281
4014                  BU     *&13                SHOULD NOT BRANCH             7  24901  J 24920 /
4015                  BCE    SD-19,WORK13,       SHOULD BRANCH                12  24908  B 24934 33599
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  AOORS  INSTRUCTION

4016                B      TYPCK                                            7  24920  J 01074
4017                DCW    @#26.03@,G                                       6  24932
4018                BNQ    AA                 TEST FOR INQUIRY REQUEST      7  24934  J 01160 Q
4019                BBE    SC,TAO1,1                                       12  24941  W 24854 01001 1
4020       SUB-RTN 26.04   CONTROL FIELD BLANK, DATA FIELO NEGATIVE
4021     SD         MLCWA  @J @,WORK13                                     12  24953  D 01507 33599 X
4022                SW     WORK13                                           6  24965  , 33599
4023                MCE    WORK13-1,WORK13                                 11  24971  E 33598 33599
4024                SBR    HOLD83                                           7  24982  G 33954 B
4025                C      HOLDB3,K34                                      11  24989  C 33954 33281
4026                BU     *&13               SHOULD NOT BRANCH             7  25000  J 25019 /
4027                BCE    SE-19,WORK13,1     SHOULD BRANCH                12  25007  B 25033 33599 1
4028                B      TYPCK                                            7  25019  J 01074
4029                DCW    @#26.04@,G                                       6  25031
4030                BNQ    AA                 TEST FOR INQUIRY REQUEST      7  25033  J 01160 Q
4031                BBE    SD,TAD1,1                                       12  25040  W 24953 01001 1
4032       SUB-RTN 26.05   CONTROL FIELD MINUS SIGN, OATA FIELD NEGATIVE
4033     SE         MLCWA  @J-@,WORK13                                     12  25052  O 01509 33599 X
4034                SW     WORK13                                           6  25064  , 33599
4035                MCE    WORK13-1,WORK13                                 11  25070  E 33598 33599
4036                SBR    HOLDB3                                           7  25081  G 33954 B
4037                C      HOLD83,K34                                      11  25088  C 33954 33281
4038                BU     *&13               SHOULD NOT BRANCH             7  25099  J 25118 /
4039                BCE    SF-19,WORK13,-                                  12  25106  B 25132 33599 -
4040                B      TYPCK                                            7  25118  J 01074
4041                OCW    @#26.05@,G                                       6  25130
4042                BNQ    AA                 TEST FOR INQUIRY REQUEST      7  25132  J 01160 Q
4043                BBE    SE,TAO1,1                                       12  25139  W 25052 01001 1
4044       SUB-RTN 26.06   CONTROL FIELD LETTERS ZR, DATA FIELD POSITIVE
4045     SF         MLCWA  @AZR@,WORK14                                    12  25151  O 01512 33602 X
4046                SW     WORK14-1                                         6  25163  , 33601
4047                MCE    WORK14-2,WORK14                                 11  25169  E 33600 33602
4048                SBR    HOLDB3                                           7  25180  G 33954 B
4049                C      HOLDB3,K35                                      11  25187  C 33954 33286
4050                BU     *&19               SHOULO NOT BRANCH             7  25198  J 25223 /
4051                C      WORK14,@AZ @                                    11  25205  C 33602 01515
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4052                BE     SG-19                                            7  25216  J 25237 S
4053                B      TYPCK                                            7  25223  J 01074
4054                OCW    @#26.06@,G                                       6  25235
4055                BNQ    AA                  TEST FOR INQUIRY REQUEST     7  25237  J 01160 Q
4056                BBE    SF,TAD1,1                                       12  25244  W 25151 01001 1
4057      SUB-RTN 26.07    TURN ON EXTENSION LATCH AND NOT BODY LATCH
4058     SG         MLCWA  @M.G @,WORK14       CTL FLD PERIOD BLANK, DATA FLD GM 12  25256  D 01518 33602 X
4059                BBE    *&13,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  25268  W 25292 01261 1
4060                MLCWA  @M.G @,WORK14       CTL FLD COMMA BLANK, DATA FLD GM 12  25280  D 01521 33602 X
4061                SW     WORK14-1                                         6  25292  , 33601
4062                MCE    WORK14-2,WORK14                                 11  25298  E 33600 33602
4063                SBR    HOLDB3                                           7  25309  G 33954 B
4064                C      HOLDB3,K35                                      11  25316  C 33954 33286
4065                BU     *&19                SHOULD NOT BRANCH            7  25327  J 25352 /
4066                C      WORK14,@M G T M@                                11  25334  C 33602 01524
4067                BE     SH-19                                            7  25345  J 25366 S
4068                B      TYPCK                                            7  25352  J 01074
4069                OCW    @#26.07@,G                                       6  25364
4070                BNQ    AA                  TEST FOR INQUIRY REQUEST     7  25366  J 01160 Q
4071                BBE    SG,TAD1,1                                       12  25373  W 25256 01001 1
4072      SUB-RTN 26.08    TURN ON BODY LATCH AND NOT EXTENSION LATCH
4073     SH         MLCWA  @.BC S @,WORK15                                 12  25385  D 01528 33606 X
4074                SW     WORK15-1                                         6  25397  , 33605
4075                MCE    WORK15-2,WORK15                                 11  25403  E 33604 33606
4076                SBR    HOLDB3                                           7  25414  G 33954 B
4077                C      HOLDB3,K36                                      11  25421  C 33954 33291
4078                BU     *&19                SHOULD NOT BRANCH            7  25432  J 25457 /
4079                C      WORK15,@.BC S @                                 11  25439  C 33606 01528
4080                BE     SI-19                                            7  25450  J 25471 S
4081                B      TYPCK                                            7  25457  J 01074
4082                OCW    @#26.08@,G                                       6  25469
4083                BNQ    AA                  TEST FOR INQUIRY REQUEST     7  25471  J 01160 Q
4084                BBE    SF,TAD1,1                                       12  25478  W 25151 01001 1
4085      SUB-RTN 26.09    TURN ON BODY AND EXTENSION LATCHES
4086     SI         MLCWA  @□□.* @,WORK14      FILL BOTH WORK14 AND WORK13  12  25490  D 01533 33602 X
4087                SW     WORK14-2                                         6  25502  , 33600
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PGLIN    LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

4088                MCE    WORK13,WORK14                            11  25508  E 33599 33602
4089                SBR    HOLDB3                                    7  25519  G 33954 B
4090                C      HOLDB3,K37                               11  25526  C 33954 33296
4091                BU     *&19              SHOULD NOT BRANCH       7  25537  J 25562 /
4092                C      WORK14,@.¤@@                             11  25544  C 33602 01536
4093                BE     SJ-19                                     7  25555  J 25576 S
4094                B      TYPCK                                     7  25562  J 01074
4095                DCW    @#26.09@,G                                6  25574
4096                BNQ    AA                TEST FOR INQUIRY REQUEST 7  25576  J 01160 Q
4097                BBE    SI,TAD1,1                                12  25583  W 25490 01001 1
4098       SUB-RTN 26.10   CHECK REMAINDER OF 1ST SCAN CIRCUITRY
4099                       WITHOUT PROCEEDING TO 2ND SCAN
4100       SJ       MLCWA  @%-$& @,WORK14    FILL BOTH WORK14 AND WORK13 12  25595  D 01541 33602 X
4101                MCE    @ZR@,WORK14                              11  25607  E 01543 33602
4102                SBR    HOLDB3                                    7  25618  G 33954 B
4103                C      HOLDB3,K33                               11  25625  C 33954 33276
4104                BU     *&19              SHOULD NOT BRANCH       7  25636  J 25661 /
4105                C      WORK14,@%-Z 9@                           11  25643  C 33602 01548
4106                BE     SK-19                                     7  25654  J 25675 S
4107                B      TYPCK                                     7  25661  J 01074
4108                DCW    @#26.10@,G                                6  25673
4109                BNQ    AA                TEST FOR INQUIRY REQUEST 7  25675  J 01160 Q
4110                BBE    SJ,TAD1,1                                12  25682  W 25595 01001 1
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4112       ROUTINE 27.00   CHECK EDIT INSTRUCTION, CONTINUED
4113                       ALL #27.XX ROUTINES END OPERATION AFTER 2ND SCAN
4114       SUB-RTN 27.01   TURN ON ZERO SUPPRESS LATCH, STORE NON-ZERO CHAR
4115     SK          MLCWA  @E0@,WORK13                                     12  25694  D 01550 33599 X
4116                 SW     WORK13                                           6  25706  , 33599
4117                 MCE    WORK13-1,WORK13                                 11  25712  E 33598 33599
4118                 SBR    HOLD83                                           7  25723  G 33954 B
4119                 C      HOLD83,K38                                      11  25730  C 33954 33301
4120                 BU     *&19                SHOULD NOT BRANCH            7  25741  J 25766 /
4121                 C      WORK13,@E5@                                     11  25748  C 33599 01552
4122                 BE     SL-19               SHOULD BRANCH                7  25759  J 25780 S
4123                 B      TYPCK                                            7  25766  J 01074
4124                 DCW    @#27.01@,G                                       6  25778
4125                 BNQ    AA                  TEST FOR INQUIRY REQUEST     7  25780  J 01160 Q
4126                 BBE    SK,TAD1,1                                       12  25787  W 25694 01001 1
4127       SUB-RTN 27.02   ZERO IN B-FLD WITH ZERO SUPPRESS ALREADY ON AND
4128                       CHECK REGEN EXT & 2ND SCAN LATCH IN SECOND SCAN
                                G
4129     SL          MLCWA  @&M00@,WORK15                                   12  25799  D 01556 33606 X
4130                 SW     WORK15-1                                         6  25811  , 33605
4131                 MCE    WORK15-2,WCRK15                                 11  25817  E 33604 33606
4132                 SBR    HOLD83                                           7  25828  G 33954 B
4133                 C      HOLD83,K39                                      11  25835  C 33954 33306
4134                 BU     *&19                SHOULD NOT BRANCH            7  25846  J 25871 /
                                      G T
4135                 C      WORK15,@&M&M@                                   11  25853  C 33606 01560
4136                 BE     SM-19               SHOULD BRANCH                7  25864  J 25885 S
4137                 B      TYPCK                                            7  25871  J 01074
4138                 DCW    @#27.02@,G                                       6  25883
4139                 BNQ    AA                  TEST FOR INQUIRY REQUEST     7  25885  J 01160 Q
4140                 BBE    SL,TAD1,1                                       12  25892  W 25799 01001 1
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4142	SUB-RTN 27.03		CHECK ASTERISK FILL, DOLLAR SIGN TO LEFT IGNORED				
4143	SM	MLCWA	@8*&0@,WORK15		12	25904	D 01584 33606 X
4144		BBE	*&26,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	25916	W 25953 01261 1
4145		MCE	@7,0/@,WORK15		11	25928	E 01568 33606
4146		SBR	HOLD83		7	25939	G 33954 B
4147		B	*&19		7	25946	J 25971
4148		MCE	@7.0/@,WORK15		11	25953	E 01572 33606
4149		SBR	HOLD83		7	25964	G 33954 B
4150		C	HOLD83,K39		11	25971	C 33954 33306
4151		BU	*&19	SHOULD NOT BRANCH	7	25982	J 26007 /
4152		C	WORK15,@***1@		11	25989	C 33606 01576
4153		BE	SN-19	SHOULD BRANCH	7	26000	J 26021 S
4154		B	TYPCK		7	26007	J 01074
4155		DCW	@#27.03@,G		6	26019	
4156		BNQ	AA	TEST FOR INQUIRY REQUEST	7	26021	J 01160 Q
4157		BBE	SM,TAD1,1		12	26028	W 25904 01001 1
4158	SUB-RTN 27.04		CHECK ASTERISK FILL AND DECIMAL CONTROL				
4159	SN	MLCWA	@ ,*0@,WORK15		12	26040	D 01580 33606 X
4160		BBE	*&13,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	26052	W 26076 01261 1
4161		MLCWA	@ .*0@,WORK15		12	26064	D 01584 33606 X
4162		MCE	&070,WORK15		11	26076	E 01587 33606
4163		SBR	HOLD83		7	26087	G 33954 B
4164		C	HOLD83,K39		11	26094	C 33954 33306
4165		BU	*&42	SHOULD NOT BRANCH	7	26105	J 26153 /
4166		C	WORK15,@*,70@		11	26112	C 33606 01591
4167		BBE	*&12,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	26123	W 26146 01261 1
4168		C	WORK15,@*.70@		11	26135	C 33606 01595
4169		BE	SP-19	SHOULD BRANCH	7	26146	J 26167 S
4170		B	TYPCK		7	26153	J 01074
4171		DCW	@#27.04@,G		6	26165	
4172		BNQ	AA	TEST FOR INQUIRY REQUEST	7	26167	J 01160 Q
4173		BBE	SN,TAD1,1		12	26174	W 26040 01001 1

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PGLIN   LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4175      SUB-RTN 27.05  PROVE THAT NON-SIGNIFICANT DIGIT SETS ZERO SUPPR
4176    SP        MLCWA  @    0@,WORK15     LINK WORK15 TO WORK14          12  26186  D 01600 33606 X
4177              MCE    @10X02@,WORK15                                    11  26198  E 01605 33606
4178              SBR    HOLDB3                                             7  26209  G 33954 B
4179              C      HOLDB3,K39                                        11  26216  C 33954 33306
4180              BU     *&19              SHOULD NOT BRANCH                7  26227  J 26252 /
4181              C      WORK15,@10X 2@                                    11  26234  C 33606 01610
4182              BE     SQ-19             SHOULD BRANCH                    7  26245  J 26266 S
4183              B      TYPCK                                              7  26252  J 01074
4184              DCW    @#27.05@,G                                         6  26264
4185              BNQ    AA                TEST FOR INQUIRY REQUEST         7  26266  J 01160 Q
4186              BBE    SP,TAD1,1                                         12  26273  W 26186 01001 1
4187      SUB-RTN 27.06  PROVE THAT PERIOD AND ZERO SUPPRESS OFF
4188                     DOES NOT SET DECIMAL CONTROL ON
4189    SQ        BBE    *&38,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE  12  26285  W 26334 01261 1
4190              MLCWA  @0.*,0@,WORK15    LINK WORK 15 TO WORK 14          12  26297  D 01615 33606 X
4191              MCE    @5@,@,WORK15      DATA FLD IS FIVE, AT SIGN, COMMA 11  26309  E 01618 33606
4192              SBR    HOLDB3                                             7  26320  G 33954 B
4193              B      *&31                                               7  26327  J 26364
4194              MLCWA  @0,*.0@,WORK15    LINK WORK 15 TO WORK 14          12  26334  D 01623 33606 X
4195              MCE    @5@.@,WORK15      DATA FLD IS FIVE, AT SIGN, PERIOD 11  26346  E 01626 33606
4196              SBR    HOLDB3                                             7  26357  G 33954 B
4197              C      HOLDB3,K39                                        11  26364  C 33954 33306
4198              BU     *&42              SHOULD NOT BRANCH                7  26375  J 26423 /
4199              C      WORK15,@5,@*#@    FIVE, COMMA, AT, SPLAT, POUND    11  26382  C 33606 01631
4200              BBE    *&12,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE  12  26393  W 26416 01261 1
4201              C      WORK15,@5.@*#@    FIVE, POINT, AT, SPLAT, POUND    11  26405  C 33606 01636
4202              BE     SR-19             SHOULD BRANCH                    7  26416  J 26437 S
4203              B      TYPCK                                              7  26423  J 01074
4204              DCW    @#27.06@,G                                         6  26435
4205              BNQ    AA                TEST FOR INQUIRY REQUEST         7  26437  J 01160 Q
4206              BBE    SQ,TAD1,1                                         12  26444  W 26285 01001 1
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4208	SUB-RTN 27.07		PROVE DEC CTL ON, PROPER TREATMENT OF MINUS SIGN				
4209	SR	MLCWA	K41A,WORK15	K41A IS @ - X,Y 0@	12	26456	D 33327 33606 X
4210		BBE	*&13,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	26468	W 26492 01261 1
4211		MLCWA	K41,WORK15	K41 IS @ - X,Y 0@	12	26480	D 33319 33606 X
4212		MCE	-7007,WORK15		11	26492	E 01640 33606
4213		SBR	HOLDB3		7	26503	G 33954 B
4214		C	HOLDB3,K39		11	26510	C 33954 33306
4215		BU	*&42	SHOULD NOT BRANCH	7	26521	J 26569 /
4216		C	WORK15,K42A	K42A IS @7-0X,Y07@	11	26528	C 33606 33343
4217		BBE	*&12,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	26539	W 26562 01261 1
4218		C	WORK15,K42	K42 IS @7-0X,Y07@	11	26551	C 33606 33335
4219		BE	SS-19	SHOULD BRANCH	7	26562	J 26583 S
4220		B	TYPCK		7	26569	J 01074
4221		DCW	@#27.07@,G		6	26581	
4222		BNQ	AA	TEST FOR INQUIRY REQUEST	7	26583	J 01160 Q
4223		BBE	SR,TAD1,1		12	26590	W 26456 01001 1

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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4225       ROUTINE 28.00  CHECK EDIT INSTRUCTION, CONCLUDED
4226                      ALL #28.XX ROUTINES REQUIRE THREE SCANS
4227       SUB-RTN 28.01  CHECK FLOATING DOLLAR SIGN AND SKID CYCLE, SCAN 3
4228     SS        MLCWA  @$0V@,WORK14                                    12  26602  D 01643 33602 X
4229               MCE    &00,WORK14-1                                    11  26614  E 01645 33601
4230               SBR    HOLDB3                                           7  26625  G 33954 B
4231               C      HOLDB3,K35                                      11  26632  C 33954 33286
4232               BU     *&19              SHOULD NOT BRANCH              7  26643  J 26668 /
4233               C      WORK14,@ $V@                                    11  26650  C 33602 01648
4234               BE     ST-19             SHOULD BRANCH                  7  26661  J 26682 S
4235               B      TYPCK                                            7  26668  J 01074
4236               DCW    @#28.01@,G                                       6  26680
4237               BNQ    AA                TEST FOR INQUIRY REQUEST       7  26682  J 01160 Q
4238               BBE    SS,TAD1,1                                       12  26689  W 26602 01001 1
4239       SUB-RTN 28.02  GO TO 3RD SCAN BECAUSE DEC CTRL AND ZERO SUPPR ON
4240                      PROVE NON-SIGNIFICANT DEC & ZERO REPL WITH BLANKS
4241     ST        MLCWA  @,0@,WORK14                                     12  26701  D 01650 33602 X
4242               BBE    *&13,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE 12  26713  W 26737 01261 1
4243               MLCWA  @.0@,WORK14                                     12  26725  D 01652 33602 X
4244               MCE    &0,WORK14                                       11  26737  E 01345 33602
4245               SBR    HOLDB3                                           7  26748  G 33954 B
4246               C      HOLDB3,K35                                      11  26755  C 33954 33286
4247               BU     *&19              SHOULD NOT BRANCH              7  26766  J 26791 /
4248               C      WORK14,@  @                                     11  26773  C 33602 01654
4249               BE     SU-19             SHOULD BRANCH                  7  26784  J 26805 S
4250               B      TYPCK                                            7  26791  J 01074
4251               DCW    @#28.02@,G                                       6  26803
4252               BNQ    AA                TEST FOR INQUIRY REQUEST       7  26805  J 01160 Q
4253               BBE    ST,TAD1,1                                       12  26812  W 26701 01001 1
4254       SUB-RTN 28.03  PROVE ASTERISKS REPLACE ZERO, DECIMAL IN 3RD SCAN
4255     SU        MLCWA  @,*0@,WORK14                                    12  26824  D 01657 33602 X
4256               BBE    *&13,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE 12  26836  W 26860 01261 1
4257               MLCWA  @.*0@,WORK14                                    12  26848  D 01660 33602 X
4258               MCE    &00,WORK14                                      11  26860  E 01645 33602
4259               SBR    HOLDB3                                           7  26871  G 33954 B
4260               C      HOLDB3,K37                                      11  26878  C 33954 33296
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PGLIN   LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4261               BU     *&19                SHOULD NOT BRANCH             7  26889  J 26914 /
4262               C      WORK14,@***1@-1     NOTE THAT DIGIT 1 IS NOT INCLUDED 11  26896  C 33602 01575
4263               BE     SV-19               SHOULD BRANCH                 7  26907  J 26928 S
4264               B      TYPCK                                             7  26914  J 01074
4265               DCW    @#28.03@,G                                        6  26926
4266               BNQ    AA                  TEST FOR INQUIRY REQUEST      7  26928  J 01160 Q
4267               BBE    SU,TAD1,1                                        12  26935  W 26824 01001 1
4268      SUB-RTN 28.04   RETAIN CHARACTER & REPLACE BLANK WITH ASTERISK
4269     SV        MLCWA  @*,M0@,WORK14                                    12  26947  D 01664 33602 X
4270               BBE    *&13,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  26959  W 26983 01261 1
4271               MLCWA  @*.M0@,WORK14                                    12  26971  D 01668 33602 X
4272               MCE    @Z @,WORK14                                      11  26983  E 01670 33602
4273               SBR    HOLDB3                                            7  26994  G 33954 B
4274               C      HOLDB3,K37                                       11  27001  C 33954 33296
4275               BU     *&19                SHOULD NOT BRANCH             7  27012  J 27037 /
4276               C      WORK14,@Z*M*@                                    11  27019  C 33602 01674
4277               BE     SW-19               SHOULD BRANCH                 7  27030  J 27051 S
4278               B      TYPCK                                             7  27037  J 01074
4279               DCW    @#28.04@,G                                        6  27049
4280               BNQ    AA                  TEST FOR INQUIRY REQUEST      7  27051  J 01160 Q
4281               BBE    SV,TAD1,1                                        12  27058  W 26947 01001 1
4282      SUB-RTN 28.05   CHECK THAT BLANK IN UNITS POSN RETAINED IN SCAN 3
4283     SW        BBE    *&38,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  27070  W 27119 01261 1
4284               MLCWA  @0.0@,WORK14                                     12  27082  D 01677 33602 X
4285               MCE    @, @,WORK14                                      11  27094  E 01679 33602
4286               SBR    HOLDB3                                            7  27105  G 33954 B
4287               B      *&31                                              7  27112  J 27149
4288               MLCWA  @0,0@,WORK14                                     12  27119  D 01682 33602 X
4289               MCE    @. @,WORK14                                      11  27131  E 01684 33602
4290               SBR    HOLDB3                                            7  27142  G 33954 B
4291               C      HOLDB3,K35                                       11  27149  C 33954 33286
4292               BU     *&19                SHOULD NOT BRANCH             7  27160  J 27185 /
4293               C      WORK14,@    0@-2    B-FLD IS BLANK, BLANK, BLANK  11  27167  C 33602 01598
4294               BE     SX-19               SHOULD BRANCH                 7  27178  J 27199 S
4295               B      TYPCK                                             7  27185  J 01074
4296               DCW    @#28.05@,G                                        6  27197
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4297                BNQ    AA                  TEST FOR INQUIRY REQUEST      7  27199  J 01160 Q
4298                BBE    SW,TAD1,1                                        12  27206  W 27070 01001 1
4299       SUB-RTN 28.06   ZERO SUPPRESS & DECIMAL CONTROL BOTH OFF, SCAN 3
4300                       INSURE THAT * TO LEFT OF $ IGNORED IN SCAN 2
4301     SX         MLCWA  @ *$0@,WORK15                                    12  27218  D 01688 33606 X
4302                MCE    @6.0@,WORK15                                     11  27230  E 01691 33606
4303                SBR    HOLDB3                                            7  27241  G 33954 B
4304                C      HOLDB3,K40                                       11  27248  C 33954 33311
4305                BU     *&19                SHOULD NOT BRANCH             7  27259  J 27284 /
4306                C      WORK15,@$6.0@                                    11  27266  C 33606 01695
4307                BE     SY-19               SHOULD BRANCH                 7  27277  J 27298 S
4308                B      TYPCK                                             7  27284  J 01074
4309                DCW    @#28.06@,G                                        6  27296
4310                BNQ    AA                  TEST FOR INQUIRY REQUEST      7  27298  J 01160 Q
4311                BBE    SX,TAD1,1                                        12  27305  W 27218 01001 1
4312       SUB-RTN 28.07   ZERO SUPPRESS OFF, DECIMAL CONTROL ON, SCAN 3
4313     SY         MLCWA  @00$0@,WORK14                                    12  27317  D 01699 33602 X
4314                BBE    *&26,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  27329  W 27366 01261 1
4315                MCE    @.30@,WORK14                                     11  27341  E 01702 33602
4316                SBR    HOLDB3                                            7  27352  G 33954 B
4317                B      *&19                                              7  27359  J 27384
4318                MCE    @,30@,WORK14                                     11  27366  E 01705 33602
4319                SBR    HOLDB3                                            7  27377  G 33954 B
4320                C      HOLDB3,K37                                       11  27384  C 33954 33296
4321                BU     *&42                SHOULD NOT BRANCH             7  27395  J 27443 /
4322                C      WORK14,@ ,30@       NOTE ABSENCE OF FLOATING DOLLAR 11  27402  C 33602 01709
4323                BBE    *&12,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  27413  W 27436 01261 1
4324                C      WORK14,@ .30@       NOTE ABSENCE OF FLOATING DOLLAR 11  27425  C 33602 01713
4325                BE     SZ-19               SHOULD BRANCH                 7  27436  J 27457 S
4326                B      TYPCK                                             7  27443  J 01074
4327                DCW    @#28.07@,G                                        6  27455
4328                BNQ    AA                  TEST FOR INQUIRY REQUEST      7  27457  J 01160 Q
4329                BBE    SY,TAD1,1                                        12  27464  W 27317 01001 1
4330       SUB-RTN 28.08   PERFORM ELABORATE EDIT
4331     SZ         BBE    *&42,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  27476  W 27529 01261 1
4332                MLCWA  K43,BIGANS                                       12  27488  D 33363 34152 X
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4333		MCE	K44,BIGANS		11	27500	E 33393 34152
4334		C	BIGANS,K45		11	27511	C 34152 33423
4335		B	*&35		7	27522	J 27563
4336		MLCWA	K43A,BIGANS		12	27529	D 33383 34152 X
4337		MCE	K44A,BIGANS		11	27541	E 33403 34152
4338		C	BIGANS,K45A		11	27552	C 34152 33443
4339		BE	TA-19	SHOULD BRANCH	7	27563	J 27584 S
4340		B	TYPCK		7	27570	J 01074
4341		OCW	@#28.08@,G		6	27582	
4342		BNQ	AA	TEST FOR INQUIRY REQUEST	7	27584	J 01160 Q
4343		BBE	SZ,TAD1,1		12	27591	W 27476 01001 1

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4345	ROUTINE 29.00		CHECK CHAINED OPERATIONS				
4346							
4347	SUB-RTN 29.01		CHAINED BRANCH-ON-WORD-MARK INSTRUCTIONS				
4348	TA	CS	202	INSURE TEST AREA BLANK	6	27603	/ 00202
4349		SW	200		6	27609	, 00200
4350		BW	*&8,202	SHOULD NOT BRANCH	12	27615	V 27634 00202 1
4351		BW		I-ADDR SAME, B-ADDR 00201, NO BR	1	27627	V
4352		BW	TB-19	NEW I-ADDR, B-ADDR 00200, BRANCH	6	27628	V 27648
4353		B	TYPCK		7	27634	J 01074
4354		DCW	@#29.01@,G		6	27646	
4355		BNQ	AA	TEST FOR INQUIRY REQUEST	7	27648	J 01160 Q
4356		BBE	TA,TAD1,1		12	27655	W 27603 01001 1
4357	SUB-RTN 29.02		CHAINED SET WORD MARK INSTRUCTIONS				
4358	TB	CS	206	INSURE TEST AREA BLANK	6	27667	/ 00206
4359		SW	206,202	ESTABLISH A & B ADDRESSES	11	27673	, 00206 00202
4360		SW		SHOULD SET WMS AT 00205, 00201	1	27684	,
4361		SW	204	SHOULD CHANGE BOTH AAR & BAR	6	27685	, 00204
4362		SW		SHOULD SET WM ONLY AT 00203	1	27691	,
4363		BW	*&8,205	SHOULD BRANCH	12	27692	V 27711 00205 1
4364		B	TC		7	27704	J 27768
4365		BW	*&8,203	SHOULD BRANCH	12	27711	V 27730 00203 1
4366		B	TC		7	27723	J 27768
4367		BW	*&8,201	SHOULD BRANCH	12	27730	V 27749 00201 1
4368		B	TC		7	27742	J 27768
4369		BW	*&8,200	SHOULD NOT BRANCH	12	27749	V 27768 00200 1
4370		B	TD-19		7	27761	J 27782
4371	TC	B	TYPCK		7	27768	J 01074
4372		DCW	@#29.02@,G		6	27780	
4373		BNQ	AA	TEST FOR INQUIRY REQUEST	7	27782	J 01160 Q
4374		BBE	TB,TAD1,1		12	27789	W 27667 01001 1
4375	SUB-RTN 29.03		CHAINED CLEAR WORD MARK INSTRUCTIONS				
4376	TD	SW	205,202	SET WMS OVER 00200-00205	11	27801	, 00205 00202
4377		SW			1	27812	,
4378		SW			1	27813	,
4379		CW	206,202	ESTABLISH A & B ADDRESSES	11	27814	¤ 00206 00202
4380		CW		SHOULD CLEAR WMS AT 00205, 00201	1	27825	¤

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PGLIN    LABEL     OPCOO  OPERANO                                          CT  AOORS  INSTRUCTION

4381               CW     204              SHOULO CHANGE 8OTH AAR & BAR     6  27826  ¤ 00204
4382               CW                      SHOULO CLEAR WM ONLY AT 00203    1  27832  ¤
4383               8W     TE,205           SHOULO NOT BRANCH               12  27833  V 27855 00205 1
4384               BW                      OITTO                            1  27845  V
4385               BW                      OITTO                            1  27846  V
4386               BW                      OITTO                            1  27847  V
4387               BW                      OITTO                            1  27848  V
4388               8W     TF-19            EXAMINE LOC 00200.  SHOULO 8RANCH  6  27849  V 27869
4389     TE        8      TYPCK                                            7  27855  J 01074
4390               DCW    @#29.03@,G                                       6  27867
4391               BNQ    AA               TEST FOR INQUIRY REQUEST         7  27869  J 01160 Q
4392               88E    TO,TAO1,1                                       12  27876  W 27801 01001 1
4393       SUB-RTN 29.04  CHAINED 8RANCH UNCONOITIONAL
4394     TF        BCE    TG-19,TF,        SETS UP I-ADOR, O-MCO.  NO BRANCH 12  27888  B 27915 27888
4395               DCW    @J@              HOME MADE 1-CHAR 8RANCH OP CODE  1  27900
4396               8      TYPCK                                            7  27901  J 01074
4397               DCW    @#29.04@,G                                       6  27913
4398               BNQ    AA               TEST FOR INQUIRY REQUEST         7  27915  J 01160 Q
4399               88E    TF,TAO1,1                                       12  27922  W 27888 01001 1
4400       SU8-RTN 29.05  CHAINEO CONOITIONAL 8RANCH.  SIMILAR TO #29.04
4401     TG        8CE    *&9,TG,S         SETS I-ADOR, O-MOO, UNEQ COMP   12  27934  B 27954 27934 S
4402               OCW    @J@              PREV D-MOO SIMULATES BR EQL HERE  1  27946
4403               8      TH-19            SHOULO TAKE THIS ONE             7  27947  J 27968
4404               8      TYPCK                                            7  27954  J 01074
4405               DCW    @#29.05@,G                                       6  27966
4406               BNQ    AA               TEST FOR INQUIRY REQUEST         7  27968  J 01160 Q
4407               BBE    TG,TAD1,1                                       12  27975  W 27934 01001 1
4408       SUB-RTN 29.06  CHAINED CLEAR STORAGE INSTRUCTION
4409     TH        MLWA   *-3,TADHLD                                      12  27987  D 27995 33969 U
4410               MLCWB  199,TADHLD       SAVE LOCATIONS 00191-00199      12  27999  O 00199 33969 P
4411               MLCWA  @XMG@,200        MOVE OATA TO LOC 00199, 00200   12  28011  D 01715 00200 X
4412               SW     200                                              6  28023  , 00200
4413               CS     300              CLEAR LOCATION 00300, STOP       6  28029  / 00300
4414               CS                      SHOULO CLEAR 00200-00299         1  28035  /
4415               C      @ X @,200        TEST LOCATIONS 00199, 00200     11  28036  C 01718 00200
4416               MLWA   *-3,199          . RESTORE LOCATIONS             12  28047  O 28055 00199 U
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PGLIN   LABEL      OPCOD  OPERAND                                                CT  ADDRS  INSTRUCTION

4417               MLCWB  TADHLD,199          . 00191-00199                     12  28059  D 33969 00199 P
4418               BE     TI-19               SHDULD BRANCH                      7  28071  J 28092 S
4419               B      TYPCK                                                  7  28078  J 01074
4420               DCW    @#29.06@,G                                             6  28090
4421               BNQ    AA                  TEST FOR INQUIRY REQUEST           7  28092  J 01160 Q
4422               BBE    TH,TAD1,1                                             12  28099  W 27987 01001 1
4423      SUB-RTN 29.07   CHAINED CLEAR STDRAGE & BRANCH INSTRUCTIDN
4424     TI        MRCWR  *&8,200             RELOCATE FDLLDWING SHORT ROUTINE  12  28111  D 28130 00200 S M
4425               B      20C                 BRANCH TO IT                       7  28123  J 00200
4426               CS     212,300  * RELDC TD 00200, CLEARS & BR TD LOC 00212   11  28130  / 00212 00300
4427               H               * RELOC TO 00211, NEVER EXECUTED              1  28141  .
4428               CS              * RELOC TO 00212, SHOULD CLEAR 00211-00200    1  28142  /
4429               B      TJ       * RELOC TO 00213, RETURN TO MAIN PROGRAM      7  28143  J 28151
4430               DCW    @*@      * RELOC TO 00220, TERMINAL CHAR FOR MRCWR     1  28150
4431     TJ        BCE    TK-19,200,          EXAMINE LOC 00200.  SHOULD BRANCH 12  28151  B 28177 00200
4432               B      TYPCK                                                  7  28163  J 01074
4433               DCW    @#29.07@,G                                             6  28175
4434               BNQ    AA                  TEST FOR INQUIRY REQUEST           7  28177  J 01160 Q
4435               BBE    TI,TAD1,1                                             12  28184  W 28111 01001 1
4436      SUB-RTN 29.08   CHAINED DATA MOVE INSTRUCTIONS
4437     TK        CS     214                                                    6  28196  / 00214
4438               MLCWA  @5.@*#@,214         MOVE DATA TO 00210-00214          12  28202  D 01636 00214 X
4439               MLCWA  214                 ALTER A-ADDR, CHAIN B-ADDR         6  28214  D 00214
4440               MLCWA                      CHAIN BOTH A & B ADDRESS           1  28220  D
4441               C      204,@5.@*#@         TEST ORIGINAL DATA NOW AT 00204   11  28221  C 00204 01636
4442               BE     TL-19               SHDULD BRANCH                      7  28232  J 28253 S
4443               B      TYPCK                                                  7  28239  J 01074
4444               DCW    @#29.08@,G                                             6  28251
4445               BNQ    AA                  TEST FDR INQUIRY REQUEST           7  28253  J 01160 Q
4446               BBE    TK,TAD1,1                                             12  28260  W 28196 01001 1
4447      SUB-RTN 29.09   CHAINED ZERO-ADD INSTRUCTION
4448     TL        CS     209                                                    6  28272  / 00209
4449               SW     200,205                                               11  28278  . 00200 00205
4450               ZA     DTABLE,209          PUT 0000I INTD 00205-00209        11  28289  Q M 33804 00209
4451               ZA                         SHDULD PUT 0000H INTO 00200-00204  1  28300  Q M
4452               C      204,&00008                                            11  28301  C 00204 01723
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4453                BE     TM-19              SHOULD BRANCH                  7  28312  J 28333 S
4454                B      TYPCK                                             7  28319  J 01074
4455                DCW    @#29.09@,G                                        6  28331
4456                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  28333  J 01160 Q
4457                BBE    TL,TAD1,1                                        12  28340  W 28272 01001 1
4458      SUB-RTN 29.10    CHAINED ZERO-SUBTRACT.  SIMILAR TO #29.09
4459      TM        CS     202                                               6  28352  / 00202
4460                SW     200,202                                          11  28358  , 00200 00202
4461                ZS     @Z*M*@,202         B-FLD LENGTH LESS THAN A-FLD  11  28369  : 01674 00202
4462                ZS                                                       1  28380  :
4463                C      201,&44                                          11  28381  C 00201 01725
4464                BE     TN-19              SHOULD BRANCH                  7  28392  J 28413 S
4465                B      TYPCK                                             7  28399  J 01074
4466                DCW    @#29.10@,G                                        6  28411
4467                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  28413  J 01160 Q
4468                BBE    TM,TAD1,1                                        12  28420  W 28352 01001 1
4469      SUB-RTN 29.11    CHAINED ADD INSTRUCTION
4470      TN        CS     203                                               6  28432  / 00203
4471                SW     200,202                                          11  28438  , 00200 00202
4472                A      DTABLE,202         SET UP ADDRESS REGISTERS      11  28449  A 33804 00202
4473                A                         SHOULD ADD PLUS 8 TO TWO BLANKS  1  28460  A
4474                C      201,@08@                                         11  28461  C 00201 01727
4475                BE     TP-19              SHOULD BRANCH                  7  28472  J 28493 S
4476                B      TYPCK                                             7  28479  J 01074
4477                DCW    @#29.11@,G                                        6  28491
4478                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  28493  J 01160 Q
4479                BBE    TN,TAD1,1                                        12  28500  W 28432 01001 1
4480      SUB-RTN 29.12    CHAINED SUBTRACT INSTRUCTION
4481      TP        MLCWA  -00009,204                                       12  28512  D 01479 00204 X
4482                SW     201,204                                          11  28524  , 00201 00204
4483                S      204,203            A-FLD LENGTH 1, B-FLD LENGTH 3 11  28535  S 00204 00203
4484                S                         SHOULD SUBTRACT 00203 FROM 00200  1  28546  S
4485                BCE    TQ-19,200,R        SHOULD BRANCH.  R IS MINUS 9   12  28547  B 28573 00200 R
4486                B      TYPCK                                             7  28559  J 01074
4487                DCW    @#29.12@,G                                        6  28571
4488                BNQ    AA                 TEST FOR INQUIRY REQUEST       7  28573  J 01160 Q
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PGLIN    LABEL      OPCOD  OPERAND                                                  CT  ADDRS  INSTRUCTION

4489                BBE    TP,TAD1,1                                                12  28580  W 28512 01001 1
4490       SUB-RTN 29.13   CHAINED MULTIPLY INSTRUCTIONS
4491     TQ         CS     211                 .                .                    6  28592  / 00211
4492                SW     211                 . SET            .                    6  28598  , 00211
4493                SW                         .  UP            .                    1  28604  ,
4494                SW     209,206             .   WORK         .                   11  28605  , 00209 00206
4495                SW     203,200             .    FIELD       .                   11  28616  , 00203 00200
4496                ZA     DTABLE,211          .     WITH       .                   11  28627  Q M 33804 00211
4497                ZS                         .      CONSTANTS .                    1  28638  ,
4498                ZA                         .       FROM     .                    1  28639  Q M
4499                ZS     DTABLE-3,206        .        DIVIDE  .                   11  28640  , 33801 00206
4500                ZS     DTABLE-4,203        .         TABLE  .                   11  28651  , 33800 00203
4501                ZS     DTABLE-5,200        .                .                   11  28662  , 33799 00200
4502                M      209,208             ESTABLISH A & B ADDR REG SETTINGS    11  28673  @ 00209 00208
4503                M      211                 ALTER A-FLD ADDR, CHAIN B-ADDR        6  28684  @ 00211
4504                M                          CHAIN BOTH A & B ADDRESSES            1  28690  @
4505                C      205,-045            TEST EFFECT OF 1ST CHAINED MPY       11  28691  C 00205 01730
4506                BU     *&19                SHOULD NOT BRANCH                     7  28702  J 28727 /
4507                C      202,&032            TEST EFFECT OF 2ND CHAINED MPY       11  28709  C 00202 01733
4508                BE     TR-19               SHOULD BRANCH                         7  28720  J 28741 S
4509                B      TYPCK                                                     7  28727  J 01074
4510                DCW    @#29.13@,G                                                6  28739
4511                BNQ    AA                  TEST FOR INQUIRY REQUEST              7  28741  J 01160 Q
4512                BBE    TQ,TAD1,1                                                12  28748  W 28592 01001 1
4513
4514       SUB-RTN 29.14   CHAINED DIVIDE INSTRUCTION. B-ADDR ONLY
4515     TR         MLCWA  @001 @,203                                               12  28760  D 01737 00203 X
4516                CW     203                 DUMMY OP TO ESTABLISH A & B ADDR      6  28772  ¤ 00203
4517                D      &5                  NEW A-ADDR, B-ADDR LOCATION 00202     6  28778  % 01303
4518                C      202,@ADD@           PLUS 1, REMAINDER PLUS 4             11  28784  C 00202 01740
4519                BE     TS-19                                                     7  28795  J 28816 S
4520                B      TYPCK                                                     7  28802  J 01074
4521                DCW    @#29.14@,G                                                6  28814
4522                BNQ    AA                  TEST FOR INQUIRY REQUEST              7  28816  J 01160 Q
4523                BBE    TR,TAD1,1                                                12  28823  W 28760 01001 1
4524       SUB-RTN 29.15   CHAINED DIVIDE INSTRUCTION, A & B ADDRESSES
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PGLIN   LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4525    TS       MLCWA  @N00E@,203                                       12  28835  D 01744 00203 X
4526             SW     201,204          DEFINE FLD LENGTHS, SET A & B ADR 11  28847  , 00201 00204
4527             D                       SHOULD DIV LOC 00200 INTO 00203   1  28858  %
4528             C      203,@J0Q@                                         11  28859  C 00203 01747
4529             BE     TT-19                                             7  28870  J 28891 S
4530             B      TYPCK                                             7  28877  J 01074
4531             DCW    @#29.15@,G                                        6  28889
4532             BNQ    AA               TEST FOR INQUIRY REQUEST         7  28891  J 01160 Q
4533             BBE    TS,TAD1,1                                        12  28898  W 28835 01001 1
4534       SUB-RTN 29.16  CHAINED BRANCH ON BIT EQUAL
4535    TT       BBE    TU,*&1,R         SET BAR, D-MOD. SHOULD NOT BRANCH 12  28910  W 28948 28922 R
4536             BBE    *&8              SHOULD BRANCH                    6  28922  W 28935
4537             B      TU                                                7  28928  J 28948
4538             MLWS   TU1&1,*&1        DUMMY OP TO SET AAR, BAR, D-MOD  12  28935  D 28963 28947 4
4539             BBE                     SHOULD BRANCH                    1  28947  W
4540    TU       B      TYPCK                                             7  28948  J 01074
4541             DCW    @#29.16@,G                                        6  28960
4542    TU1      NOP                                                      1  28962  N
4543             BNQ    AA               TEST FOR INQUIRY REQUEST         7  28963  J 01160 Q
4544             BBE    TT,TAD1,1                                        12  28970  W 28910 01001 1
4545       SUB-RTN 29.17  CHAINED BRANCH ON CHARACTER EQUAL
4546    TV       BCE    TW,*&1,Z         SET BAR, D-MOD. SHOULD NOT BRANCH 12  28982  B 29020 28994 Z
4547             BCE    *&8              SHOULD BRANCH                    6  28994  B 29007
4548             B      TW                                                7  29000  J 29020
4549             MLWS   TW1&1,*&1        DUMMY OP TO SET AAR, BAR, D-MOD  12  29007  D 29035 29019 4
4550             BCE                     SHOULD BRANCH                    1  29019  B
4551    TW       B      TYPCK                                             7  29020  J 01074
4552             DCW    @#29.17@,G                                        6  29032
4553    TW1      NOP                                                      1  29034  N
4554             BNQ    AA               TEST FOR INQUIRY REQUEST         7  29035  J 01160 Q
4555             BBE    TV&1,TAD1,1                                      12  29042  W 28983 01001 1
4556       SUB-RTN 29.18  CHAINED COMPARE INSTRUCTIONS
4557    TX       C      K46,K47          9 VS 8 MUST SET B LESS THAN A    11  29054  C 33444 33445
4558             C      K46              COMPARE TWO IDENTICAL NUMBER 9S  6  29065  C 33444
4559             BE     *&8              SHOULD BRANCH                    7  29071  J 29085 S
4560             B      *&9                                               7  29078  J 29093
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4561               C                      COMP A-FLD LTR C WITH B-FLD LTR J  1  29085  C
4562               BH     TY-19           SHOULD BRANCH                      7  29086  J 29107 U
4563               B      TYPCK                                              7  29093  J 01074
4564               DCW    @#29.18@,G                                         6  29105
4565               BNQ    AA              TEST FOR INQUIRY REQUEST           7  29107  J 01160 Q
4566               BBE    TX&1,TAD1,1                                       12  29114  W 29055 01001 1
4567      SUB-RTN 29.19   CHAINED TABLE LOOK-UP INSTRUCTIONS
4568     TY        LL     DTABLE-3,DTABLE SET AAR, BAR, OP-MOD REGISTERS    12  29126  T 33801 33804 1
4569               LL     DTABLE-6                                           6  29138  T 33798
4570               SBR    *&11                                               7  29144  G 29161 B
4571               BCE    *&8,0,A         SHOULD BRANCH, A IS PLUS 1        12  29151  B 29170 00000 A
4572               B      TZ                                                 7  29163  J 29202
4573               MLZS   DTABLE-6,DTABLE SET AAR, BAR, OP-MOD REGISTERS    12  29170  D 33798 33804 2
4574               LE                                                        1  29182  T
4575               SBR    *&11                                               7  29183  G 29200 B
4576               BCE    UA-19,0,A       SHOULD BRANCH                     12  29190  B 29216 00000 A
4577     TZ        B      TYPCK                                              7  29202  J 01074
4578               DCW    @#29.19@,G                                         6  29214
4579               BNQ    AA              TEST FOR INQUIRY REQUEST           7  29216  J 01160 Q
4580               BBE    TY,TAD1,1                                         12  29223  W 29126 01001 1
4581      SUB-RTN 29.20   CHAINED MOVE AND ZERO SUPPRESS INSTRUCTIONS
4582     UA        BBE    UA1,EEBIT,1     BRANCH IF EUROPEAN EDIT FEATURE   12  29235  W 29312 01261 1
4583               MCS    K51,WORK16-1    ESTABLISH A & B ADDR REG SETTINGS 11  29247  Z 33463 33613
4584               MCS    K51             ALTER AAR, CHAIN BAR               6  29258  Z 33463
4585               C      WORK16,K54                                        11  29264  C 33614 33487
4586               BU     UB              SHOULD NOT BRANCH                  7  29275  J 29377 /
4587               MCS    K51,WORK16-1    ESTABLISH A & B ADDR REG SETTINGS 11  29282  Z 33463 33613
4588               MCS                    CHAIN BOTH AAR & BAR               1  29293  Z
4589               C      WORK16,K53                                        11  29294  C 33614 33481
4590               B      UA2                                                7  29305  J 29370
4591     UA1       MCS    K51A,WORK16-1   ESTABLISH A & B ADDR REG SETTINGS 11  29312  Z 33475 33613
4592               MCS    K51A            ALTER AAR, CHAIN BAR               6  29323  Z 33475
4593               C      WORK16,K54A                                       11  29329  C 33614 33493
4594               BU     UB              SHOULD NOT BRANCH                  7  29340  J 29377 /
4595               MCS    K51A,WORK16-1   ESTABLISH A & B ADDR REG SETTINGS 11  29347  Z 33475 33613
4596               MCS                    CHAIN BOTH AAR & BAR               1  29358  Z
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PGLIN   LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4597             C      WORK16,K53                                       11  29359  C 33614 33481
4598    UA2      BE     UC-19            SHOULD BRANCH & EXIT ROUTINE HERE  7  29370  J 29391 S
4599    UB       B      TYPCK                                             7  29377  J 01074
4600             DCW    @#29.20@,G                                        6  29389
4601             BNQ    AA               TEST FOR INQUIRY REQUEST         7  29391  J 01160 Q
4602             BBE    UA,TAD1,1                                        12  29398  W 29235 01001 1
4603      SUB-RTN 29.21 CHAINED MOVE CHARACTERS AND EDIT INSTRUCTION, #1
4604    UC       MLCWA  @X0 00@,204      SET UP CONTROL FIELDS            12  29410  D 01752 00204 X
4605             SW     202              . SET UP                          6  29422  , 00202
4606             SW                      . FIELD LENGTHS                   1  29428  ,
4607             MCE    &50,203          ESTABLISH A & B REG SETTINGS     11  29429  E 01503 00203
4608             MCE    &50              ALTER AAR, CHAIN BAR              6  29440  E 01503
4609             C      204,@X 550@      TEST WORK AREA                   11  29446  C 00204 01757
4610             BE     UD-19            SHOULD BRANCH                     7  29457  J 29478 S
4611             B      TYPCK                                             7  29464  J 01074
4612             DCW    @#29.21@,G                                        6  29476
4613             BNQ    AA               TEST FOR INQUIRY REQUEST         7  29478  J 01160 Q
4614             BBE    UC,TAD1,1                                        12  29485  W 29410 01001 1
4615      SUB-RTN 29.22 CHAINED MOVE CHARACTERS AND EDIT INSTRUCTION, #2
4616    UD       MLCWA  @ ,0@,202        SET UP CONTROL FIELDS            12  29497  D 01760 00202 X
4617             BBE    *&13,EEBIT,1     BRANCH IF EUROPEAN EDIT FEATURE  12  29509  W 29533 01261 1
4618             MLCWA  @ .0@,202        SET UP CONTROL FIELDS            12  29521  D 01763 00202 X
4619             SW     201                                               6  29533  , 00201
4620             MCE    K48,202          ESTABLISH A & B REG SETTINGS     11  29539  E 33446 00202
4621             MCE                     CHAIN BOTH AAR & BAR              1  29550  E
4622             C      202,@8  @                                        11  29551  C 00202 01766
4623             BE     UE-19            SHOULD BRANCH                     7  29562  J 29583 S
4624             B      TYPCK                                             7  29569  J 01074
4625             DCW    @#29.22@,G                                        6  29581
4626             BNQ    AA               TEST FOR INQUIRY REQUEST         7  29583  J 01160 Q
4627             BBE    UD,TAD1,1                                        12  29590  W 29497 01001 1
4628      SUB-RTN 29.23 TEST FOR NO RESET OF D-MODIFIER REGISTER
4629    UE       BCE    *&8,*&1,J        SET D-MODIFIER, SHOULD NOT BRANCH 12  29602  B 29621 29614 J
4630             CW     UF-18            ESTABLISH A & B ADDR REG SETTINGS  6  29614  ¤ 29636
4631             BCE                     SHOULD BRANCH                     1  29620  B
4632             B      TYPCK                                             7  29621  J 01074
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PGLIN     LABEL      OPCOD  OPERAND                                        CT  ADDRS  INSTRUCTION
4633                 DCW    @#29.23@,G                                      6  29633
4634                 BNQ    AA                  TEST FOR INQUIRY REQUEST    7  29635  J 01160 Q
4635                 BBE    UE,TAD1,1                                      12  29642  W 29602 01001 1
4636       SUB-RTN 29.24    TEST FOR RESET OF D-MODIFIER REGISTER
4637       UF        BAV    *&1                 DUMMY OP SETS D-MOD RESGITER TO Z   7  29654  J 29661 Z
4638                 CW     UG&1,UG-1           DUMMY OP SETS AAR, BAR, RESET D    11  29661  W 29691 29689
4639                 BCE                        SHOULD BRANCH TO NEXT ROUTINE    1  29672  B
4640                 B      TYPCK                                           7  29673  J 01074
4641                 DCW    @#29.24@,G                                      6  29685
4642                        @N Z@                                           3  29689
4643       UG        BNQ    AA                  TEST FOR INQUIRY REQUEST    7  29690  J 01160 Q
4644                 BBE    UF,TAD1,1                                      12  29697  W 29654 01001 1
4645       SUB-RTN 29.25    TEST THAT NOP HAS NO EFFECT ON CHAINED OPERATION
4646       UG1       MLWS   UG2&1,*&1           SETS AAR, BAR, OP MOD REGISTERS  12  29709  D 29749 29721 4
4647                 DCW    @N%89876543210@                                 12  29732
4648                 BCE                        SHOULD BRANCH TO NEXT ROUTINE    1  29733  B
4649                 B      TYPCK                                           7  29734  J 01074
4650                 DCW    @#29.25@,G                                      6  29746
4651       UG2       NOP                                                    1  29748  N
4652                 BNQ    AA                  TEST FOR INQUIRY REQUEST    7  29749  J 01160 Q
4653                 BBE    UG1,TAD1,1                                     12  29756  W 29709 01001 1
4654       SUB-RTN 29.26    TEST THAT SBR INST DOES NOT EFFECT AAR OR BAR
4655                        BUT DOES ALTER THE OP MOD REGISTER
4656       UG3       MLWS   UG4,*&9             ESTABLISH A & B ADDR REG SETTINGS  12  29768  D 29803 29788 4
4657                 SBR    HOLDB4              DUMMY OP TO CHANGE OP MOD REG    7  29780  G 33954 B
4658                 BCE                        SHOULD BRANCH TO NEXT ROUTINE    1  29787  B
4659                 B      TYPCK                                           7  29788  J 01074
4660                 DCW    @#29.26@,G                                      6  29800
4661                 NOP                                                    1  29802  N
4662       UG4       BNQ    AA                  TEST FOR INQUIRY REQUEST    7  29803  J 01160 Q
4663                 BBE    UG3,TAD1,1                                     12  29810  W 29768 01001 1
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4665       ROUTINE 30.00  TEST PROGRAM AND COMPUTER RESETS, ONLY ONE TIME
4666
4667                      IT IS RECOMMENDED THAT ONCE, DURING THE EXECUTION
4668                      OF C021B, TAD4 AT LOCATION 01004 BE ALTERED TO
4669                      A 1 SO THAT CERTAIN FUNCTIONS OF THE RESET KEYS
4670                      MAY BE TESTED
4671
4672       SUB-RTN 30.01  TEST PROGRAM RESET, OPTIONAL
4673     UH        8BE    *&8,TAD4,1          ONLY DO ROUTINE IF TAD4 IS 1   12  29822  W 29841 01004 1
4674               8      US                  OTHERWISE, SKIP WHOLE THING     7  29834  J 30247
4675               ZA     &500,WORK16-5                                      11  29841  Q M 01769 33609
4676               A      WORK16-5            TURN ON ZERO BAL, ARITH OVERFLOW  6  29852  A 33609
4677               D      &0,WORK16-5         TURN ON DIVIDE OVERFLOW        11  29858  % 01345 33609
4678               C      *,*                 TURN ON 8 EQUAL A              11  29869  C 29879 29879
4679               MLCA   &UJ,6               ALTER LOC 00002-00006          12  29880  D 01774 00006 T
4680     UI        B      TYPE                                                7  29892  J 01029
4681               DCW    @PRESS PROGRAM RESET & START@,G                    27  29925
4682               H      UI                                                  6  29927  . 29892
4683     UJ        MLCA   &RESET,6            RESTORE LOCATIONS 00002-00006  12  29933  D 01361 00006 T
4684               8E     *&12                SHOULD BRANCH                   7  29945  J 29963 S
4685               CW     UK&1,UL&1                                          11  29952  ¤ 30018 30052
4686               BAV    *&12                SHOULD BRANCH                   7  29963  J 29981 Z
4687               CW     UK&1,UM&1                                          11  29970  ¤ 30018 30084
4688               BDV    *&12                SHOULD BRANCH                   7  29981  J 29999 W
4689               CW     UK&1,UN&1                                          11  29988  ¤ 30018 30118
4690               BZ     *&12                SHOULD BRANCH                   7  29999  J 30017 V
4691               CW     UK&1,UP&1                                          11  30006  ¤ 30018 30150
4692     UK        NOP                                                        1  30017  N
4693               8      US-19               EXIT HERE IF NO ERRORS          7  30018  J 30228
4694               B      TYPCK                                               7  30025  J 01074
4695               DCW    @#30.01@,G                                          6  30037
4696               8BE    UQ,TA00,1                                          12  30039  W 30180 01000 1
4697     UL        NOP                                                        1  30051  N
4698               8      UM                                                  7  30052  J 30083
4699               8      TYPE                                                7  30059  J 01029
4700               DCW    @ B EQUAL A RESET@,G                               16  30081
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PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
4701	UM	NOP		1	30083	N
4702		B	UN	7	30084	J 30117
4703		B	TYPE	7	30091	J 01029
4704		DCW	@ ARITH OFLOW RESET@,G	18	30115	
4705	UN	NOP		1	30117	N
4706		B	UP	7	30118	J 30149
4707		B	TYPE	7	30125	J 01029
4708		DCW	@ DIV OFLOW RESET@,G	16	30147	
4709	UP	NOP		1	30149	N
4710		B	UQ	7	30150	J 30180
4711		B	TYPE	7	30157	J 01029
4712		DCW	@ ZERO BAL RESET@,G	15	30178	
4713	UQ	BBE	*&8,TAD2,1	12	30180	W 30199 01002 1
4714		B	*&2	7	30192	J 30200
4715		H		1	30199	.
4716		SW	UK&1,UL&1	11	30200	, 30018 30052
4717		SW	UM&1,UN&1	11	30211	, 30084 30118
4718		SW	UP&1	6	30222	, 30150
4719		BNQ	AA TEST FOR INQUIRY REQUEST	7	30228	J 01160 Q
4720		BBE	UH,TAD1,1	12	30235	W 29822 01001 1

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PGLIN   LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4722      SUB-RTN 30.02  TEST COMPUTER RESET, OPTIONAL.  SIMILAR TO #30.01
4723    US       BBE    *&8,TAD4,1          ONLY DO ROUTINE IF TAD4 IS 1   12  30247  W 30266 01004 1
4724             B      VB1                 OTHERWISE, FORGET IT            7  30259  J 30720
4725             ZA     &500,WORK16-5       .                              11  30266  Q M 01769 33609
4726             A      WORK16-5            . JUST LIKE #30.01              6  30277  A 33609
4727             D      &0,WORK16-5         .                              11  30283  % 01345 33609
4728             C      *,*                 .                              11  30294  C 30304 30304
4729             MLCA   &UU,6               ALTER LOC 00002-00006          12  30305  D 01779 00006 T
4730    UT       B      TYPE                                                7  30317  J 01029
4731             DCW    @PRESS COMPUTER RESET & START@,G                   28  30351
4732             H      UT                                                  6  30353  . 30317
4733    UU       MLCA   &RESET,6            RESTORE LOCATIONS 00002-00006  12  30359  D 01361 00006 T
4734             BL     *&12                SHOULD BRANCH                   7  30371  J 30389 T
4735             CW     UV&1,UW&1                                          11  30378  ¤ 30465 30499
4736             BAV    *&8                 SHOULD NOT BRANCH               7  30389  J 30403 Z
4737             B      *&12                                                7  30396  J 30414
4738             CW     UV&1,UX&1                                          11  30403  ¤ 30465 30533
4739             BCV    *&8                 SHOULD NOT BRANCH               7  30414  J 30428 W
4740             B      *&12                                                7  30421  J 30439
4741             CW     UV&1,UY&1                                          11  30428  ¤ 30465 30571
4742             BZ     *&8                 SHOULD NOT BRANCH               7  30439  J 30453 V
4743             B      *&12                                                7  30446  J 30464
4744             CW     UV&1,UZ&1                                          11  30453  ¤ 30465 30607
4745    UV       NOP                                                        1  30464  N
4746             B      VB-19               EXIT HERE IF NO ERRORS          7  30465  J 30689
4747             B      TYPCK                                               7  30472  J 01074
4748             DCW    @#30.02@,G                                          6  30484
4749             BBE    VA,TAD0,1                                          12  30486  W 30641 01000 1
4750    UW       NOP                                                        1  30498  N
4751             B      UX                                                  7  30499  J 30532
4752             B      TYPE                                                7  30506  J 01029
4753             DCW    @ FAIL TO SET B L T A@,G                           18  30530
4754    UX       NOP                                                        1  30532  N
4755             B      UY                                                  7  30533  J 30570
4756             B      TYPE                                                7  30540  J 01029
4757             DCW    @ ARITH OFLOW NOT RESET@,G                         22  30568
```

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4758	UY	NOP			1	30570	N
4759		B	UZ		7	30571	J 30606
4760		B	TYPE		7	30578	J 01029
4761		DCW	@ DIV OFLOW NOT RESET@,G		20	30604	
4762	UZ	NOP			1	30606	N
4763		B	VA		7	30607	J 30641
4764		B	TYPE		7	30614	J 01029
4765		DCW	@ ZERO BAL NOT RESET@,G		19	30639	
4766	VA	BBE	*&8,TAD2,1		12	30641	W 30660 01002 1
4767		B	*&2		7	30653	J 30661
4768		H			1	30660	.
4769		SW	UV&1,UW&1		11	30661	, 30465 30499
4770		SW	UX&1,UY&1		11	30672	, 30533 30571
4771		SW	UZ&1		6	30683	, 30607
4772		BNQ	AA	TEST FOR INQUIRY REQUEST	7	30689	J 01160 Q
4773		BBE	US,TAD1,1		12	30696	W 30247 01001 1
4774	VB	MLCS	@ 2,TAD4	PREVENT REPEAT OF #30.01 & #30.02	12	30708	D 01780 01004 3

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PGLIN    LABEL      OPCOD  OPERAND                                                  CT  ADDRS  INSTRUCTION

4776       ROUTINE 31.00   MISCELLANEOUS LONG ROUTINES
4777
4778                       BECAUSE THE TIME REQUIRED TO PERFORM THIS ROUTINE
4779                       AND THE NEXT IS RELATIVELY LONG, THEY ARE DONE
4780                       ONLY THE FIRST TIME THROUGH AND THEREAFTER ONLY
4781                       WHEN THE PASS COUNT WORK AREA IS REDUCED TO ZERO.
4782
4783       SUB-RTN 31.01   FILL AVAILABLE STORAGE ABOVE LOCATION 34978 WITH
4784                       WORD-MARK D.  THEN EXECUTE THESE DS AS AT LEAST
4785                       FIVE-THOUSAND CHAINED DATA MOVE INSTRUCTIONS.
4786                       CHECK ADDRESS REGISTERS AT CONCLUSION.
4787     VB1        NOPWM                                                          1  30720  N
4788                B      VE2                                                    7  30721  J 30951
4789     VC         SW     MEMSIZ              PREPARE FOR TABLE LOOK-UP          6  30728  , 01257
4790                LEH    MEMSIZ,SIZTBL       . IF MEMSIZ IS NOT IN TABLE,      12  30734  T 01257 33846 6
4791                SBR    *&6                 . ASSUME 40K STORAGE CAPACITY      7  30746  G 30758 B
4792                MLCWA  0,X1                                                  12  30753  D 00000 00029 X
4793                CW     MEMSIZ                                                6  30765  ¤ 01257
4794                SW     34900               . CLEAR STORAGE                    6  30771  , 34900
4795                CS     39999&X1            . FROM                             6  30777  / 399Z9
4796                SBR    *&6                 . HIGHEST AVAILABLE LOCATION       7  30783  G 30795 B
4797                CS     0                   . THROUGH                          6  30790  / 00000
4798                SBR    *-7                 . STORAGE LOCATION                 7  30796  G 30795 B
4799                BW     *-24,34900          . 34900                           12  30803  V 30790 34900 1
                                                                                                                S
4800                MRCWR  K56,39977&X1        PUT SHORT ROUTINE AT TOP OF STOR  12  30815  D 33506 399X7 M
4801                SW     34978               .                                  6  30827  , 34978
4802                MLCWS  *-11,39976&X1       . FILL AVAIL STORAGE WITH WDMK-DS 12  30833  O 30833 399X6 7
4803                MLCWB  39976&X1,39975&X1   .                                 12  30845  D 399X6 399X5 P
4804                MLCWA  K55&11,34977        PLACE INITIAL INSTR OF SERIES     12  30857  D 33505 34977 X
4805                B      34966               BRANCH TO IT                       7  30869  J 34966
4806     VD         C      HOLDA4,@00000@      RETURN TO THIS POINT              11  30876  C 33949 01785
4807                BU     VE                  SHOULD NOT BRANCH                  7  30887  J 30912 /
4808                C      HOLD84,@34999@                                        11  30894  C 33954 01790
4809                BE     VE1-19                                                7  30905  J 30926 S
4810     VE         B      TYPCK                                                 7  30912  J 01074
4811                DCW    @#31.01@,G                                            6  30924
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4812                BNQ    AA                TEST FOR INQUIRY REQUEST        7  3D926  J 0116D Q
4813                B8E    VC,TAD1,1                                        12  30933  W 30728 01001 1
4814     VE1        SW     VB1&1                                            6  30945  , 30721
4815
4816       SU8-RTN 31.02   FILL STORAGE - EXCEPT FOR APPROX THE LOWER 35100
4817                       POSITIONS - WITH A SERIES OF INDEXED BRANCH
4818                       INSTRUCTIONS ALTERNATED WITH STORE B REGISTER
4819                       INSTRUCTIONS.  THIS ROUTINE, WHICH PROVIDES NO
4820                       ERROR TYPEOUT, IS EXPECTED TO PROVE THE
4821                       RELIABILITY OF INDEXING AND SBR INSTRUCTION.
4822                       INDEX REGISTER #1 IS USED BY THE ROUTINE ITSELF,
4823                       AND INDEX REGISTERS 2 THROUGH 15 ARE TESTED.
4824
4825     VE2        NOPWM                                                    1  30951  N
4826                B      VG                                               7  30952  J 31250
4827     VF         MLCWA  TRASH,X15         FILL ENTIRE IX REG AREA W/JUNK  12  30959  D 34421 DD099 X
4828                SW     X15                                              6  30971  , 00099
4829                MLWB   X15,X15-1         SET WMS OVER EVERY POSITION     12  30977  D 00099 D0098 M
4830                SW     MEMSIZ            .                              6  30989  , 01257
4831                LEH    MEMSIZ,KTABLE     .                              12  30995  T 01257 33944 6
4832                SBR    *&6               . JUST LIKE #31.01             7  31007  G 31019 B
4833                MLCA   0,X1              .                              12  31014  D 00000 00029 T
4834                CW     MEMSIZ            .                              6  31026  ¤ 01257
4835                MLCWA  &00014,XR0                                       12  31032  D 01795 00024 X
4836                MLCA   &LTABLE,*&6                                      12  31044  D 01800 31061 T
4837     COMBAK     MLCA   0,K57&12                                         12  31056  D 00000 33540 T
4838                SAR    *&6                                              7  31068  G 31080 A
4839                MLCA   0,K57&4                                          12  31075  D 00000 33532 T
4840                SAR    COMBAK&5                                         7  31087  G 31061 A
4841                MLCA   K57&12,K58&5                                     12  31094  D 33540 33561 T
4842                SW     35000             .                              6  31106  , 35000
4843                CS     39999&X1          .                              6  31112  / 39929
4844                SBR    *&6               . JUST LIKE #31.01             7  31118  G 31130 B
4845                CS     0                 .                              6  31125  / 00000
4846                SBR    *-7               .                              7  31131  G 31130 B
4847                BW     *-24,35000        .                              12  31138  V 31125 35000 1
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4848		SW	35091		6	31150	, 35091
4849		MRCWG	K57,39977&X1		12	31156	D 33528 399X7 DL
4850		MLCWB	39990&X1,39976&X1	FILL AVAIL STOR W BR & SBR INSTRS	12	31168	D 399Z0 399X6 P
4851		MLCWA	K58&6,35090		12	31180	D 33562 35090 X
4852		MLCWA			1	31192	D
4853		B	35C78	BR TO FIRST INSTR OF SEQUENCE	7	31193	J 35078
4854	TOHERE	BNQ	AA	AND RETURN TO THIS INSTRUCTION	7	31200	J 01160 Q
4855		BBE	*-25,TAD1,1		12	31207	W 31193 01001 1
4856		S	&1,XR0		11	31219	S 01300 00024
4857		BZ	*&8	EXIT ROUTINE HERE AFTER 14 LOOPS	7	31230	J 31244 V
4858		B	COMBAK		7	31237	J 31056
4859		SW	VE2&1		6	31244	, 30952

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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
4861        ROUTINE 32.00   TEST 7010 INSTRUCTIONS STORE & RESTORE INDICATORS
4862
4863      VG           BCE  VH,CPU,X          BRANCH IF CPU IS A 7010,     12  31250  B 31269 01256 X
4864                   B    W8                OTHERWISE SKIP #32 - #33.XX GROUP  7  31262  J 32817
4865
4866        SUB-RTN 32.01   TEST STORE INDICATORS AND WORD-MARK ELIMINATION
4867      VH           ZA   &500,WORK16-5      . TURN ON                    11  31269  Q
                                                                                        M 01769 33609
4868                   A    WORK16-5          . ZERO BALANCE & ARITH OVERFLOW,  6  31280  A 33609
4869                   D    &0,WORK16-5       . DIVIDE OVERFLOW,           11  31286  % 01345 33609
4870                   C    *-10,*-10         . AND COMPARE EQUAL          11  31297  C 31297 31297
4871                   MLCWS SIX,WORK17       PUT COMPLEMENTARY CHAR IN WORK17  12  31308  D 33066 33615 7
4872                   STCPU WORK17                                        7  31320  $ 33615 S
4873                   BW   *&13,WORK17       SHOULD NOT BRANCH            12  31327  V 31351 33615 1
4874                   BCE  VI-19,WORK17,I    SHOULD BRANCH                12  31339  B 31365 33615 I
4875                   B    TYPCK                                          7  31351  J 01074
4876                   DCW  @#32.01@,G                                     6  31363
4877                   BNQ  AA                TEST FOR INQUIRY REQUEST     7  31365  J 01160 Q
4878                   B8E  VH,TAD1,1                                      12  31372  W 31269 01001 1
4879        SUB-RTN 32.02   TEST RESTORE INDICATORS
4880      VI           C    K47,K46           TURN ON B GREATER THAN A     11  31384  C 33445 33444
4881                   STCPU WORK17                                        7  31395  $ 33615 S
4882                   BH   *&8               SHOULD BRANCH                7  31402  J 31416 U
4883                   B    *&26                                           7  31409  J 31441
4884                   C    K46,K47           TURN ON B LESS THAN A        11  31416  C 33444 33445
4885                   RSCPU WORK17                                        7  31427  $ 33615 R
4886                   BH   VJ-19             SHOULD BRANCH                7  31434  J 31455 U
4887                   B    TYPCK                                          7  31441  J 01074
4888                   DCW  @#32.02@,G                                     6  31453
4889                   BNQ  AA                TEST FOR INQUIRY REQUEST     7  31455  J 01160 Q
4890                   B8E  VI,TAD1,1                                      12  31462  W 31384 01001 1
4891        SUB-RTN 32.03   FURTHER TEST RESTORE INDICATORS
4892      VJ           C    K47,K46           TURN ON B GREATER THAN A     11  31474  C 33445 33444
4893                   MLCWS FOUR,WORK17                                   12  31485  D 33064 33615 7
4894                   RSCPU WORK17                                        7  31497  $ 33615 R
4895                   BL   *&8               SHOULD BRANCH                7  31504  J 31518 T
4896                   B    VK                                             7  31511  J 31618
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4897               MLCWS  EYE,WORK17                                       12  31518  D 33040 33615 7
4898               RSCPU  WORK17                                            7  31530  $ 33615 R
4899               BE     *&15              SHOULD BRANCH                   7  31537  J 31558 S
4900               BU     VK                                                7  31544  J 31618 /
4901               B      VK                                                7  31551  J 31618
4902               BZ     *&8               SHOULD BRANCH                   7  31558  J 31572 V
4903               B      VK                                                7  31565  J 31618
4904               BAV    *&8               SHOULD BRANCH                   7  31572  J 31586 Z
4905               B      VK                                                7  31579  J 31618
4906               BCV    *&8               SHOULD BRANCH                   7  31586  J 31600 W
4907               B      VK                                                7  31593  J 31618
4908               C      NWM57,WORK17      TEST THAT WORK 17 UNCHANGED     11  31600  C 32998 33615
4909               BE     VL-19                                             7  31611  J 31632 S
4910     VK        B      TYPCK                                             7  31618  J 01074
4911               DCW    @#32.03@,G                                        6  31630
4912               BNQ    AA                TEST FOR INQUIRY REQUEST        7  31632  J 01160 Q
4913               BBE    VJ,TAD1,1                                        12  31639  W 31474 01001 1
4914       SUB-RTN 32.04  CHECK ADDRESS REGISTERS AFTER INDEXED STORE AND
4915                      RESTORE INDICATOR OPERATIONS
4916     VL        MLCWA  FIVE9S,X1                                        12  31651  D 34008 00029 X
4917               STCPU  WORK17-99999&X1   EFFECTIVE ADDRESS IS WORK 17     7  31663  $ 336/6 S
4918               SAR    HOLDA             SAVE AAR                        7  31670  G 33949 A
4919               SBR    HOLDB             SAVE BAR                        7  31677  G 33954 B
4920               C      HOLDA,&WORK17     TEST AAR                       11  31684  C 33949 01805
4921               BU     VM                SHOULD NOT BRANCH               7  31695  J 31777 /
4922               C      HOLDB,K49         TEST BAR                       11  31702  C 33954 33451
4923               BU     VM                SHOULD NOT BRANCH               7  31713  J 31777 /
4924               RSCPU  WORK17-99999&X1   EFFECTIVE ADDRESS IS WORK 17     7  31720  $ 336/6 R
4925               SAR    HOLDA                                             7  31727  G 33949 A
4926               SBR    HOLDB                                             7  31734  G 33954 B
4927               C      HOLDA,&WORK17                                    11  31741  C 33949 01805
4928               BU     VM                SHOULD NOT BRANCH               7  31752  J 31777 /
4929               C      HOLDB,K49                                        11  31759  C 33954 33451
4930               BE     VN-19             SHOULD BRANCH & EXIT ROUTINE HERE 7  31770  J 31791 S
4931     VM        B      TYPCK                                             7  31777  J 01074
4932               DCW    @#32.04@,G                                        6  31789
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PGLIN   LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4933             8NQ    AA                TEST FOR INQUIRY REQUEST        7  31791  J 01160 Q
4934             88E    VL,TAD1,1                                        12  31798  W 31651 01001 1
4935     SUB-RTN 32.05  TEST RESTORE EXTERNAL STATUS INDICATORS, CHNL 1
4936     VN      8A1    *&1               INSURE CHANNEL INTERLOCK RESET   7  31810  R 31817 G M
4937             MLCWS  ALL8IT,WORK17                                    12  31817  D 33011 33615 7
4938             REC    WORK17                                           7  31829  $ 33615 1
4939             8A1    *&8               SHOULD BRANCH AND RESET INTERLOCK 7  31836  R 31850 G M
4940             B      VP                                               7  31843  J 31969
4941             8NR1   *&1               NOT READY SHOULD NOT BE RESET    7  31850  R 31857 1
4942             8NR1   *&8               SHOULD BRANCH                    7  31857  R 31871 1
4943             8      VP                                               7  31864  J 31969
4944             8CB1   *&1               BUSY SHOULD NOT BE RESET         7  31871  R 31878 2
4945             BCB1   *&8               SHOULD BRANCH                    7  31878  R 31892 2
4946             8      VP                                               7  31885  J 31969
4947             BER1   *&1               DATA CHECK SHOULD NOT BE RESET   7  31892  R 31899 4
4948             BER1   *&8               SHOULD BRANCH                    7  31899  R 31913 4
4949             8      VP                                               7  31906  J 31969
4950             8EF1   *&1               CONDITION SHOULD NOT BE RESET    7  31913  R 31920 8
4951             BEF1   *&8               SHOULD BRANCH                    7  31920  R 31934 8
4952             8      VP                                               7  31927  J 31969
4953             BNT1   *&1               NO TRANSFER SHOULD NOT BE RESET  7  31934  R 31941 S B
4954             BNT1   *&8               SHOULD BRANCH                    7  31941  R 31955 S B
4955             B      VP                                               7  31948  J 31969
4956             BWL1   *&1               W.L.R. SHOULD NOT BE RESET       7  31955  R 31962 -
4957             8WL1   VQ-19             SHOULD BRANCH & EXIT ROUTINE HERE 7  31962  R 31983 -
4958     VP      B      TYPCK                                            7  31969  J 01074
4959             OCW    @#32.05@,G                                       6  31981
4960             8NQ    AA                TEST FOR INQUIRY REQUEST        7  31983  J 01160 Q
4961             B8E    VN,TAD1,1                                        12  31990  W 31810 01001 1
4962     SUB-RTN 32.06  FURTHER TEST RESTORE EXTERNAL STATUS INDICATORS
4963     VQ      8A1    *&1               INSURE CHANNEL INTERLOCK RESET   7  32002  R 32009 G M
4964             MLCWS  NWM63,WORK17                                     12  32009  D 33004 33615 7
4965             REC    WORK17            ATTEMPT TO TURN ON ALL INDICATORS 7  32021  $ 33615 1
4966             MLCWS  NWM00,WORK17                                     12  32028  D 32942 33615 7
4967             REC    WORK17            ATTEMPT TO RESET ALL INDICATORS  7  32040  $ 33615 1
4968             8NR1   *&43              . SHOULD NOT                     7  32047  R 32096 1
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

4969               BCB1   *&36            . TAKE                            7  32054  R 32096 2
4970               BER1   *&29            . ANY                             7  32061  R 32096 4
4971               BEF1   *&22            . OF                              7  32068  R 32096 8
4972               BNT1   *&15            . THESE                           7  32075  R 32096 S B
4973               BWL1   *&8             . BRANCHES                        7  32082  R 32096 -
4974               B      VR-19                                             7  32089  J 32110
4975               B      TYPCK                                             7  32096  J 01074
4976               DCW    @#32.06@,G                                        6  32108
4977               BNQ    AA              TEST FOR INQUIRY REQUEST          7  32110  J 01160 Q
4978               BBE    VQ,TAD1,1                                        12  32117  W 32002 01001 1
4979      SUB-RTN 32.07   FURTHER TEST RESTORE EXTERNAL STATUS INDICATORS
4980     VR        BA1    *&1             INSURE CHANNEL INTERLOCK RESET    7  32129  R 32136 G M
4981               MLCWS  NWM00,WORK17                                     12  32136  O 32942 33615 7
4982               REC    WORK17          RESET EXTERNAL STATUS INDICATORS  7  32148  $ 33615 1
4983               MLCWS  ALLBIT,WORK17                                    12  32155  O 33011 33615 7
4984               REC    WORK17          ATTEMPT TO TURN ON EXTNL STAT INS 7  32167  $ 33615 1
4985               BA1    *&B             SHOULD BRANCH                     7  32174  R 32188 G M
4986               B      VS                                                7  32181  J 32265
4987               BNR1   *&8             SHOULD BRANCH                     7  32188  R 32202 1
4988               B      VS                                                7  32195  J 32265
4989               BCB1   *&8             SHOULD BRANCH                     7  32202  R 32216 2
4990               B      VS                                                7  32209  J 32265
4991               BER1   *&B             SHOULD BRANCH                     7  32216  R 32230 4
4992               B      VS                                                7  32223  J 32265
4993               BEF1   *&B             SHOULD BRANCH                     7  32230  R 32244 8
4994               B      VS                                                7  32237  J 32265
4995               BNT1   *&B             SHOULD BRANCH                     7  32244  R 32258 S B
4996               B      VS                                                7  32251  J 32265
4997               BWL1   VT-19           SHOULD BRANCH & EXIT ROUTINE HERE 7  32258  R 32279 -
4998     VS        B      TYPCK                                             7  32265  J 01074
4999               DCW    @#32.07@,G                                        6  32277
5000               BNQ    AA              TEST FOR INQUIRY REQUEST          7  32279  J 01160 Q
5001               BBE    VR,TAD1,1                                        12  32286  W 32129 01001 1
5002      SUB-RTN 32.08   TEST STORE EXTERNAL STATUS INDICATORS
5003     VT        BA1    *&1             INSURE CHANNEL INTERLOCK RESET    7  32298  R 32305 G M
5004               MLCWS  VEE,WORK17                                       12  32305  O 33055 33615 7
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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

5005               REC    WORK17            SET INDICATORS WITH BIT-OH CHAR   7  32317  $ 33615 1
5006               MLCWS  NWM42,WORK17      MOVE COMPLEMENT BIT-OH CHARACTER 12  32324  D 32983 33615 7
5007               SEC    WORK17            STORE E CHANNEL INDICATORS        7  32336  $ 33615 E
5008               C      NWM21,WORK17      TEST THAT PROPER CHAR WAS STORED 11  32343  C 32963 33615
5009               BU     VU                SHOULD NOT BRANCH                 7  32354  J 32404 /
5010               MLCWS  EXCLAM,WCRK17                                      12  32361  D 33041 33615 7
5011               SEC    WORK17            STORE E CHANNEL INDICATORS AGAIN  7  32373  $ 33615 E
5012               BW     VU,WORK17         TEST CHNL INTLK RESET - NO BRANCH 12  32380  V 32404 33615 1
5013               BCE    VV-19,WORK17,V    SHOULD BRANCH                    12  32392  B 32418 33615 V
5014     VU        B      TYPCK                                             7  32404  J 01074
5015               DCW    @#32.08@,G                                        6  32416
5016               BNQ    AA                TEST FOR INQUIRY REQUEST          7  32418  J 01160 Q
5017               BBE    VT,TAD1,1                                        12  32425  W 32298 01001 1
5018       SUB-RTN 32.09  CHAINEO STORE INDICATORS
5019     VV        MLCWS  QUESTN,WORK17                                     12  32437  D 33031 33615 7
5020               RSCPU  WORK17            TURN ON B GREATER THAN A,         7  32449  $ 33615 R
5021                                        ZERO BALANCE, ARITH & DIV OFLO
5022               MLCWA  @55@,WORK18       MOVE COMPLEMENTARY CHARACTERS    12  32456  D 01807 33617 X
5023               STCPU  WORK18            STORE CPU STATUS INDICATORS       7  32468  $ 33617 S
5024               OCW    @$@               CHAINED STORE STATUS INOICATORS   1  32475
5025               SAR    HOLOA                                             7  32476  G 33949 A
5026               SBR    HOLDB                                             7  32483  G 33954 B
5027               C      HOLOA,&WORK18                                    11  32490  C 33949 01812
5028               BU     VW                SHOULO NOT BRANCH                 7  32501  J 32557 /
5029               C      HOLOB,K15                                        11  32508  C 33954 33102
5030               BU     VW                SHOULO NOT BRANCH                 7  32519  J 32557 /
5031               BCE    *&8,WORK18,Q M    TEST CHAR AT WORK18, SHOULD BRNCH 12  32526  B 32545 33617 Q M
5032               B      VW                                                7  32538  J 32557
5033               BCE    VX-19,WORK18-1,Q M TEST CHAR AT WORK18-1.  BRANCH   12  32545  B 32571 33616 Q M
5034     VW        B      TYPCK                                             7  32557  J 01074
5035               OCW    @#32.09@,G                                        6  32569
5036               BNQ    AA                TEST FOR INQUIRY REQUEST          7  32571  J 01160 Q
5037               BBE    VV,TAD1,1                                        12  32578  W 32437 01001 1
5038       SUB-RTN 32.10  CHAINEO RESTORE INDICATORS
5039     VX        MLCWS  LOZNGE,WORK17                                     12  32590  D 33008 33615 7
5040               RSCPU  WORK17            TURN ON B LESS THAN A, ZERO BAL,  7  32602  $ 33615 R
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
5041				ARITH AND DIVIDE OVERFLOW			
5042		BCE	*&1,THREE,R	DUMMY OP TO SET BAR, OP MOD REG	12	32609	B 32621 33063 R
5043		DCW	@$@	CHAINED RESTORE INDICATORS	1	32621	
5044		STCPU	WORK17	STORE INDICATORS JUST TURNED ON	7	32622	$ 33615 S
5045		BCE	VY-19,WORK17,2	SHOULD BRANCH & EXIT ROUTINE HERE	12	32629	B 32655 33615 2
5046		B	TYPCK		7	32641	J 01074
5047		OCW	@#32.10@,G		6	32653	
5048		BNQ	AA	TEST FOR INQUIRY REQUEST	7	32655	J 01160 Q
5049		BBE	VX,TA01,1		12	32662	W 32590 01001 1

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
5051	ROUTINE 33.00		TEST 7010 OPERATION BRANCH ON C-BIT				
5052							
5053	SUB-RTN 33.01		TEST BRANCH AND NO-BRANCH CONDITIONS				
5054	VY	BBC	VY2,GMWM	SHOULD NOT BRANCH	12	32674	# 32724 33011 4
5055		BBC	VY1,CBIT	SHOULD BRANCH	12	32686	# 32705 32942 4
5056		B	VY2		7	32698	J 32724
5057	VY1	BBC		. SHOULD	1	32705	#
5058		DC	VY2	. NOT	5	32710	32724
5059			CBIT	. BRANCH	5	32715	32942
5060			@.@	. PERIOD IS ALL BITS EXCEPT 4-BIT	1	32716	
5061		B	VZ-19		7	32717	J 32738
5062	VY2	B	TYPCK		7	32724	J 01074
5063		DCW	@#33.01@,G		6	32736	
5064		BNQ	AA	TEST FOR INQUIRY REQUEST	7	32738	J 01160 Q
5065		BBE	VY,TA01,1		12	32745	W 32674 01001 1
5066	SUB-RTN 33.02		TEST CHAINED OPERATION BRANCH ON C-BIT				
5067	VZ	BCE	VZ1,VZ1,4	DUMMY OP SETS AAR, BAR, OP-MOD	12	32757	B 32778 32778 4
5068		BBC		CHAINED OP SHOULD BRANCH TO VZ1	1	32769	#
5069		NOP		. THIS BR OP-MOD AND NOP INSTR	1	32770	N
5070		B	VZ2	. PROVIDE C-BITS FOR TEST #33.02	7	32771	J 32784
5071	VZ1	BBC	WB-19	SHOULD BRANCH & EXIT ROUTINE HERE	6	32778	# 32798
5072	VZ2	B	TYPCK		7	32784	J 01074
5073		DCW	@#33.02@,G		6	32796	
5074		BNQ	AA	TEST FOR INQUIRY REQUEST	7	32798	J 01160 Q
5075		BBE	VZ,TA01,1		12	32805	W 32757 01001 1

```
PGLIN   LABEL   OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

5077                   COUNT PASSES
5078
5079    WB      S      &1,PCCWK                                 11  32817  S 01300 01015
5080            BZ     *&8                                       7  32828  J 32842 V
5081            B      START                                     7  32835  J 02000
5082            A      &1,PCOUNT        COUNT ONE PASS          11  32842  A 01300 32868
5083            B      TYPE                                      7  32853  J 01029
5084            DCW    @PASS  @                                  6  32865
5085    PCOUNT         @000@,G                                   3  32868
5086            B8E    RESET,TAC3,1                             12  32870  W 32906 01003 1
5087            B      TYPE                                      7  32882  J 01029
5088            DCW    @EDJ C021B@,G                             9  32897
5089            B      LOADER           EXIT C021B HERE          7  32899  J 00400
5090
5091    RESET   CW     JF&1                                      6  32906  ¤ 10189
5092            CW     KX&1,QV&1                                11  32912  ¤ 12546 21396
5093            CW     VB1&1,VE2&1                              11  32923  ¤ 30721 30952
5094            B      START                                     7  32934  J 02000
5095            H                       DEFINE PRECEDING INSTR LENGTH  1  32941  .
```

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5097			CONSTANTS AND WORK AREAS			
5098						
5099						
5100	NWM00	DC	@ @	1	32942	
5101	NWM01		@1@	1	32943	
5102	NWM02		@2@	1	32944	
5103	NWM03		@3@	1	32945	
5104	NWM04		@4@	1	32946	
5105	NWM05		@5@	1	32947	
5106	NWM06		@6@	1	32948	
5107	NWM07		@7@	1	32949	
5108	NWM08		@8@	1	32950	
5109	NWM09		@9@	1	32951	
5110	NWM10		@0@	1	32952	
5111	NWM11		@#@	1	32953	
5112	NWM12		@@@	1	32954	
5113	NWM13		@.@	1	32955	
5114	NWM14		@T@ (G)	1	32956	
5115	NWM15		@M@ (T)	1	32957	
5116	NWM16		@B@ (S)	1	32958	
5117	NWM17		@/@	1	32959	
5118	NWM18		@S@	1	32960	
5119	NWM19		@T@	1	32961	
5120	NWM20		@U@	1	32962	
5121	NWM21		@V@	1	32963	
5122	NWM22		@W@	1	32964	
5123	NWM23		@X@	1	32965	
5124	NWM24		@Y@	1	32966	
5125	NWM25		@Z@	1	32967	
5126	NWM27		@,@	1	32968	
5127	NWM28		@%@ (W)	1	32969	
5128	NWM29		@S@ (B)	1	32970	
5129	NWM30		@S@ (S)	1	32971	
5130	NWM31		@M@	1	32972	
5131	NWM32		@-@	1	32973	
5132	NWM33		@J@	1	32974	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5133	NWM34		@K@	1	32975	
5134	NWM35		@L@	1	32976	
5135	NWM36		@M@	1	32977	
5136	NWM37		@N@	1	32978	
5137	NWM38		@O@	1	32979	
5138	NWM39		@P@	1	32980	
5139	NWM40		@Q@	1	32981	
5140	NWM41		@R@	1	32982	
5141	NWM42		@'@	1	32983	
5142	NWM43		@$@	1	32984	
5143	NWM44		@*@	1	32985	
5144	NWM45		@B@ R	1	32986	
5145	NWM46		@.@ D	1	32987	
5146	NWM47		@L@	1	32988	
5147	NWM48		@E@	1	32989	
5148	NWM49		@A@	1	32990	
5149	NWM50		@B@	1	32991	
5150	NWM51		@C@	1	32992	
5151	NWM52		@D@	1	32993	
5152	NWM53		@E@	1	32994	
5153	NWM54		@F@	1	32995	
5154	NWM55		@G@	1	32996	
5155	NWM56		@H@	1	32997	
5156	NWM57		@I@	1	32998	
5157	NWM58		@M@ Q	1	32999	
5158	NWM59		@.@	1	33000	
5159	NWM60		@¤@ L	1	33001	
5160	NWM61		@B@ L	1	33002	
5161	NWM62		@T@ G	1	33003	
5162	NWM63		@M@	1	33004	
5163	NWM26		@*@	1	33005	
5164						
5165	TABLE	DCW	@ @	1	33006	
5166	PERIOD		@.@	1	33007	
5167	LOZNGE		@¤@ L	1	33008	
5168	LBRAKT		@B@	1	33009	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5169	LESS		a<L>Ta	1	33010	
5170	ALLBIT		a<G>Ma	1	33011	
5171	AMPSND		a&a	1	33012	
5172			a$a	1	33013	
5173	SPLAT		a*a	1	33014	
5174	RBRAKT		a<R>Ba	1	33015	
5175			a.a	1	33016	
5176	DELTA		a<D>La	1	33017	
5177	DASH		a-a	1	33018	
5178			a/a	1	33019	
5179	COMMA		a,a	1	33020	
5180	PERCNT		a%a	1	33021	
5181	WDSEP	DC	a<W>Sa	1	33022	
5182	BKSLSH	DCW	a<B>Sa	1	33023	
5183	SEGMRK		a<S>Ma	1	33024	
5184	SUBLNK		a<S>Ba	1	33025	
5185	POUND		a#a	1	33026	
5186	ATSIGN		a@a	1	33027	
5187	COLON		a:a	1	33028	
5188	GREATR		a<G>Ta	1	33029	
5189	TPMARK		a<T>Ma	1	33030	
5190	QUESTN		a<Q>Ma	1	33031	
5191	AYE		aAa	1	33032	
5192	BEE		aBa	1	33033	
5193	SEE		aCa	1	33034	
5194	DEE		aDa	1	33035	
5195	EEE		aEa	1	33036	
5196	EFF		aFa	1	33037	
5197	GEE		aGa	1	33038	
5198	AITCH		aHa	1	33039	
5199	EYE		aIa	1	33040	
5200	EXCLAM		a'a	1	33041	
5201	JAY		aJa	1	33042	
5202			aKa	1	33043	
5203	ELL		aLa	1	33044	
5204	EMM		aMa	1	33045	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5205			@N@	1	33046	
5206	CH		@O@	1	33047	
5207	PEA		@P@	1	33048	
5208	QUEUE		@Q@	1	33049	
5209	ARE		@R@	1	33050	
5210	RCDMRK		@*@	1	33051	
5211	ESS		@S@	1	33052	
5212	TEA		@T@	1	33053	
5213			@U@	1	33054	
5214	VEE		@V@	1	33055	
5215	DBLYOU		@W@	1	33056	
5216	EKS		@X@	1	33057	
5217	WYE		@Y@	1	33058	
5218	ZEE		@Z@	1	33059	
5219	NAUGHT		@0@	1	33060	
5220	ONE		@1@	1	33061	
5221	TWO		@2@	1	33062	
5222	THREE		@3@	1	33063	
5223	FOUR		@4@	1	33064	
5224	FIVE		@5@	1	33065	
5225	SIX		@6@	1	33066	
5226	SEVEN		@7@	1	33067	
5227	EIGHT		@8@	1	33068	
5228	NINE		@9@	1	33069	
5229						
5230	KO1	DC	@M@ (T)	1	33070	
5231		DCW	@N@	1	33071	
5232	KO2		@&*@	2	33072	
5233	KO3	DC	@B@ (S)	1	33074	
5234		DCW	@N@	1	33075	
5235	KO4		@L*@ (D)	2	33076	
5236	KO5		@MN@ (G)	2	33079	
5237	KO6	DC	@ @	1	33080	
5238		DCW	@*@	1	33081	
5239	KO7		@IN@	2	33083	
5240	KO8	DC	@6@	1	33084	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5241		DCW	@*@	1	33085	
5242	K09		@MS@	2	33087	
5243	K10	DC	@-@	1	33088	
5244		DCW	@*@	1	33089	
5245	K11		@PN@	2	33091	
5246	K12	DC	@Y@	1	33092	
5247		DCW	@*@	1	33093	
5248	K13	DC	@MG@	1	33094	
5249		DCW	@N@	1	33095	
5250	K14		@ *@	2	33096	
5251	K15		WORK18-2	5	33102	33615
5252	K16		MANY9S-16	5	33107	34070
5253	K17		BIGANS-33	5	33112	34119
5254	K18		FIVE4S-16	5	33117	34054
5255	K19		@12345678898888888899@	20	33137	
5256	K20		@123456789MC@	10	33147	
5257	K21		@00000000009999999991001234567810@	31	33178	
5258	K22		WORK11-4	5	33183	33585
5259	K23		K20-10	5	33188	33137
5260	K24		@,-,.0.MQ@	7	33195	
5261	K24A		@.-.,0,MQ@	7	33202	
5262	K25		@0,, 0@	6	33208	
5263	K25A		@0.. 0@	6	33214	
5264	K26		@9 .,-.@	6	33220	
5265	K27		@ 9,$*@	5	33225	
5266	K27A		@ 9.$*@	5	33230	
5267	K28		@ - . . @	7	33237	
5268	K28A		@ - , , @	7	33244	
5269	K29		@ @	6	33250	
5270	K30		@9 .,-0@	6	33256	
5271	K31		@ 9,$ @	5	33261	
5272	K31A		@ 9.$ @	5	33266	
5273	K32		WORK12&1	5	33271	33598
5274	K33		WORK13-2	5	33276	33597
5275	K34		WORK13-1	5	33281	33598
5276	K35		WORK14-2	5	33286	33600

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5277	K36		WORK15-2	5	33291	33604
5278	K37		WORK14-3	5	33296	33599
5279	K38		WORK13&1	5	33301	33600
5280	K39		WORK15&1	5	33306	33607
5281	K40		WORK15-4	5	33311	33602
5282	K41		@ - X.Y 0@	8	33319	
5283	K41A		@ - X,Y 0@	8	33327	
5284	K42		@7-0X.Y07@	8	33335	
5285	K42A		@7-0X,Y07@	8	33343	
5286	K43		@ ,90*C.-0@	20	33363	
5287	K43A		@ .90*C,-0@	20	33383	
5288	K44		@,N@F , 0N@	10	33393	
5289	K44A		@.N@F . 0N@	10	33403	
5290	K45		@******N@F***9, 0C.-5@	20	33423	
5291	K45A		@******N@F***9. 0C,-5@	20	33443	
5292	K46		9	1	33444	
5293	K47		8	1	33445	
5294	K48		0	1	33446	
5295	K49		WORK17-1	5	33451	33614
5296	K50		@0,, 0@	6	33457	
5297	K51		@9 .,-.@	6	33463	
5298	K50A		@0.. 0@	6	33469	
5299	K51A		@9 ,.-.@	6	33475	
5300	K53		@ @	6	33481	
5301	K54		@9 .,-0@	6	33487	
5302	K54A		@9 ,.-0@	6	33493	
5303	K55	SCNLS	5000&X1,39999&X1	12	33494	D 050*0 399Z9
5304	K56	SAR	HOLDA4	7	33506	G 33949 A
5305		SBR	HOLDB4	7	33513	G 33954 B
5306		B	VD	7	33520	J 30876
5307		DCW	@*@	1	33527	
5308	K57	B	0	7	33528	J 00000
5309		SBR	0	7	33535	G 00000 B
5310		B	TOHERE	7	33542	J 31200
5311		DCW	@M@	1	33549	
5312		CW	35099	6	33550	¤ 35099

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PGLIN   LABEL   OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

5313    K58     SAR    0                                                 7  33556  G 00000 A
5314
5315    WORK1   DCW    @ @                                               1  33563
5316    WORK2          @ @                                               1  33564
5317    WORK3          @  @                                              2  33566
5318    WORK4          @          @                                     10  33576
                         S
5319    WORK5          @& B-@                                            4  33580
5320    WORK6          @ @                                               1  33581
5321    WORK7          @ @                                               1  33582
5322    WORK8          @ @                                               1  33583
5323    WORK9          @ @                                               1  33584
5324    WORK10         @ @                                               1  33585
5325    WORK11         @    @                                            4  33589
5326    WORK12         @        @                                        8  33597
5327    WORK13         @  @                                              2  33599
5328    WORK14         @   @                                             3  33602
5329    WORK15         @    @                                            4  33606
5330    WORK16         @        @                                        8  33614
5331    WORK17         @ @                                               1  33615
5332    WORK18         @  @                                              2  33617
5333                   TABLES OF DATA USED IN TABLE LOOK UP TEST
5334
5335    ENDA    DCW    ENDITM-1                                          5  33622  33623
5336    ENDITM         @B&@                                              2  33624
5337                   @ @                                               1  33625
                          LLG   RG
5338                   @.¤BTM&$*BM@                                     10  33635
                        .C     WBSS   .GTQ
5339                   @,L-/,%SSMB#@.TMMAB&@                            19  33654
                                 .
5340    ENDTBL         @CDEFGHI.JKLMNOPQR*STUVWXYZ0123456789$@          37  33691
5341
5342    LLCON          T01-2                                             5  33696  33696
                         R
5343    T01            @B/@                                              2  33698
5344                   @ @                                               1  33699
5345     LSTP          @ *,@                                             3  33700
                         R
5346                   @ B/@                                             3  33705
                         .
5347    LTBL           @ ,-@                                             3  33708
5348
```

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5349	TO2		B @S#@	2	33710	
5350			@ @	1	33711	
5351	ESTP		B @ S#@	3	33712	
5352			W @ S#@	3	33717	
5353	ETBL		S @ M#@	3	33720	
5354						
5355	TO3		T @MB@	2	33722	
5356			@ @	1	33723	
5357	LESTP1		C @ TC@	3	33724	
5358	LETBL1		C @ MA@	3	33729	
5359						
5360			@ @	1	33730	
5361	LESTP2		T @ MB@	3	33731	
5362	LETBL2		C @ MB@	3	33736	
5363						
5364	TO4		@EI@	2	33738	
5365			@ @	1	33739	
5366	HSTP		@ FH@	3	33740	
5367			@ EI@	3	33745	
5368	HTBL		@ D.@	3	33748	
5369						
5370	TO5		@LO@	2	33750	
5371			@ @	1	33751	
5372	LHSTP1		@ KO@	3	33752	
5373	LHTBL1		@ LO@	3	33757	
5374						
5375			@ @	1	33758	
5376	LHSTP2		@ MO@	3	33759	
5377	LHTBL2		@ LO@	3	33764	
5378						
5379	TO6		@*U@	2	33766	
5380			@ @	1	33767	
5381	EHSTP1		@ *U@	3	33768	
5382	EHTBL1		@ RV@	3	33773	
5383						
5384			@ @	1	33774	

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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
5385       EHSTP2          @ ST@                                     3  33775
5386      EHTBL2           @ RU@                                     3  33780
5387
5388      TO7              @X1@                                      2  33782
5389                       @ @                                       1  33783
5390       ANY1            @ W2@                                     3  33784
5391
5392                       @ @                                       1  33787
5393       ANY2            @ X1@                                     3  33788
5394
5395                       @ @                                       1  33791
5396       ANY3            @ Y0@                                     3  33792
5397
5398                       &0          NUMBER                        1  33795
5399                       &1                                        1  33796
5400                       &2          TABLE                         1  33797
5401                       &3                                        1  33798
5402                       &4          USED                          1  33799
5403                       &5                                        1  33800
5404                       &6          BY SUBROUTINE                 1  33801
5405                       &7                                        1  33802
5406                       &8          #24.02 AND OTHERS             1  33803
5407      OTABLE           &9                                        1  33804
5408                       TABLE USED BY SUB-ROUTINE #31.01
5409                       @600009@                                  6  33810
5410                       @500008@                                  6  33816
5411                       @4C0007@                                  6  33822
5412                       @3C0006@                                  6  33828
5413                       @2000005@                                 6  33834
5414                       @1C0004@                                  6  33840
5415      SIZTBL           @0000003@                                 6  33846
5416                       TWO TABLES USED BY SUB-ROUTINE #31.02
5417                       @MM@                                      2  33848
5418                       99                                        2  33850
5419                       @M.@                                      2  33852
5420                       94                                        2  33854
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PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5421			@M+@	2	33856	
5422			89	2	33858	
5423			@M-@	2	33860	
5424			84	2	33862	
5425			@.M@	2	33864	
5426			79	2	33866	
5427			@..@	2	33868	
5428			74	2	33870	
5429			@.+@	2	33872	
5430			69	2	33874	
5431			@.-@	2	33876	
5432			64	2	33878	
5433			@+M@	2	33880	
5434			59	2	33882	
5435			@+.@	2	33884	
5436			54	2	33886	
5437			@++@	2	33888	
5438			49	2	33890	
5439			@+-@	2	33892	
5440			44	2	33894	
5441			@-M@	2	33896	
5442			39	2	33898	
5443			@-.@	2	33900	
5444	LTABLE		34	2	33902	
5445						
5446			@599769@	6	33908	
5447			@499808@	6	33914	
5448			@399847@	6	33920	
5449			@299886@	6	33926	
5450			@199925@	6	33932	
5451			@099964@	6	33938	
5452	KTABLE		@000003@	6	33944	
5453						
5454	HOLDA	DCW	@ @	5	33949	
5455	HOLDB		@ @	5	33954	
5456	P1		@ @	3	33957	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5457	P2		@ @	3	33960	
5458	TADHLD		@ @	9	33969	
5459	SPECL1		@£.□BTM@	6	33975	
5460	SPECL2		@B,%SSM@	6	33981	
5461	SPECL3		@ #@.TM@	6	33987	
5462	SPECL4		@-$*B,L@	6	33993	
5463	ALFADD		ALPHA-2	5	33998	01994
5464	BETADD		WORK3A-2	5	34003	01997
5465	FIVE9S		£99999	5	34008	
5466	AADDR1		FIELD1-3	5	34013	34029
5467	BADDR1		FIELD2-3	5	34018	34032
5468	AADDR2		FIELD3-3	5	34023	34035
5469	BADDR2		FIELD4-3	5	34028	34039
5470	FIELC1		@9M8G@	4	34032	
5471	FIELC2		@□$G@	3	34035	
5472	FIELC3		@,1G@	3	34038	
5473	FIELC4		@ /.G@	4	34042	
5474	LIMIT		@ @	4	34046	
5475	HISTRT		@ @	2	34048	
5476	LOSTRT		@ @	2	34050	
5477	HICNT		@ @	2	34052	
5478	LOCNT		@ @	2	34054	
5479	FIVE4S		@54EDNMVU.@S%B*B□@	16	34070	
5480	MANY9S		@999999999999991@	16	34086	
5481	PRODCT		@0545454545454545345454545454545454F@	33	34119	
5482	BIGANS		@ @	33	34152	
5483	MPYT8L		@ MTB□.MIHGFEDCBA&L,B*$.RQPONMLKJ-@	33	34153	
5484			@MSS%,*ZYXWVUTS/BMT.@#0987654321 @	32	34217	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5486		DCW	@ .¤BTM&$*B,L-/,%SSMB#@.TMMABCDEF@	32	34249	
5487	CCON1	DC	@GHI*.JKLMNCPQR*STUVWXYZ01234567890@	32	34281	
5488						
5489			@ @ CAUSE ODD-EVEN DISPARITY, CCON1/2	1	34282	
5490						
5491		DCW	@. B¤MT$&B*L,/-%,SSBM@#T.MMBADCFE@	32	34314	
5492	CCON2	DC	@HG*.IKJMLONQP*RTSVUXWZY10325476980@	32	34346	
5493						
5494		DCW	@-*0&&*0&-*0&-*0&-*0&-*0&*@	25	34371	
5495		DC	@*0&-00&-*&&-*0*-*33*-300-3@	25	34396	
5496	TRASH		@0&-*&&-*00-*0&&*0&-*0&-*0@	25	34421	

```
PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
5498                       TABLE OF EQUATE STATEMENTS
5499      LOADER    EQU    400
5500      TAD0      EQU    1000
5501      TAD1      EQU    1001
5502      TAD2      EQU    1002
5503      TAD3      EQU    1003
5504      TAD4      EQU    1004
5505      CPU       EQU    1256
5506      MEMSIZ    EQU    1257
5507      EEBIT     EQU    SYSCTL&5
5508      BLANK     EQU    TABLE
5509      CBIT      EQU    NWM00
5510      PLUS1     EQU    AYE
5511      PLUS2     EQU    BEE
5512      PLUS3     EQU    SEE
5513      PLUS4     EQU    DEE
5514      PLUS5     EQU    EEE
5515      PLUS6     EQU    EFF
5516      PLUS7     EQU    GEE
5517      PLUS8     EQU    AITCH
5518      PLUS9     EQU    EYE
5519      PLUS0     EQU    QUESTN
```

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5521			TABLE OF EQUATE STATEMENTS, CONTINUED			
5522	MINUS7	EQU	PEA			
5523	MINUS8	EQU	QUEUE			
5524	MINUS0	EQU	EXCLAM			
5525	DIVSCR	EQU	WORK7			
5526	DIVDND	EQU	WORK8			
5527	QUOREM	EQU	P1			
5528	QUOTNT	EQU	WORK10			
5529	XR0	EQU	24			
5530	TPMK	EQU	NWM15			
5531	QUOT	EQU	NWM31			
5532	DELT	EQU	NWM47			
5533	GPMK	EQU	NWM63			
5534	GMWM	EQU	ALLBIT			
5535	HOLDA1	EQU	HOLDA			
5536	HOLDA2	EQU	HOLDA			
5537	HOLDA3	EQU	HOLDA			
5538	HOLDA4	EQU	HOLDA			
5539	HOLDB1	EQU	HOLDB			
5540	HOLDB2	EQU	HOLDB			
5541	HOLDB3	EQU	HOLDB			
5542	HOLDB4	EQU	HOLDB			

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5544		LTORG	LOWLOC		01289	
5544			£8	1	01289	
5544			-8	1	01290	
5544			@Y@	1	01291	
5544			@8@	1	01292	
5544			£6	1	01293	
5544			-1	1	01294	
5544			-9	1	01295	
5544			£2	1	01296	
5544			£9	1	01297	
5544			£4	1	01298	
5544			-6	1	01299	
5544			£1	1	01300	
5544			-2	1	01301	
5544			-4	1	01302	
5544			£5	1	01303	
5544			£54321	5	01308	
5544			£9876	4	01312	
5544			£123	3	01315	
5544			£45679	5	01320	
5544			-45679	5	01325	
5544			-54321	5	01330	
5544			@9RIY@	4	01334	
5544			£34567	5	01339	
5544			-34567	5	01344	
5544			£0	1	01345	
5544			£7	1	01346	
5544			JD	5	01351	10086
5544			JC	5	01356	10079
5544			RESET	5	01361	32906
5544			KF02	5	01366	11590
5544			POUND	5	01371	33026
5544			KF07	5	01376	11708
5544			KF06	5	01381	11701
5544			@00101@	5	01386	
5544			@0C102@	5	01391	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5544			&4C96	4	01395	
5544			&64	2	01397	
5544			&63	2	01399	
5544			ENCITM	5	01404	33624
5544			LSTP	5	01409	33700
5544			ESTP	5	01414	33712
5544			LESTP1	5	01419	33724
5544			LESTP2	5	01424	33731
5544			HS1P	5	01429	33740
5544			LHSTP1	5	01434	33752
5544			LHSTP2	5	01439	33759
5544			EHSTP1	5	01444	33768
5544			EHSTP2	5	01449	33775
5544			ANY1	5	01454	33784
5544			ANY2	5	01459	33788
5544			ANY3	5	01464	33792
5544			&04096	5	01469	
5544			&00064	5	01474	
5544			-00009	5	01479	
5544			-00010	5	01484	
5544			a‡‡Y1a	4	01488	
5544			a/J‡Aa	4	01492	
5544			aOJOMa	4	01496	
5544			aBBa	2	01498	
5544			aXX a	3	01501	
5544			&5C	2	01503	
5544			aM&a	2	01505	
5544			aJ a	2	01507	
5544			aJ-a	2	01509	
5544			aAZRa	3	01512	
5544			aAZ a	3	01515	
5544			aM. a	3	01518	
5544			aM, a	3	01521	
5544			aM Ma	3	01524	
5544			a.BC a	4	01528	
5544			a□□:* a	5	01533	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5544			@'.¤@@	3	01536	
5544			@%-$¢ @	5	01541	
5544			@ZR@	2	01543	
5544			@%-Z 9@	5	01548	
5544			@£0@	2	01550	
5544			@E5@	2	01552	
5544			@£MOO@	4	01556	
5544			@£M£M@	4	01560	
5544			@$*£0@	4	01564	
5544			@7,0/@	4	01568	
5544			@7.0/@	4	01572	
5544			@***1@	4	01576	
5544			@ ,*0@	4	01580	
5544			@ .*0@	4	01584	
5544			£070	3	01587	
5544			@*,70@	4	01591	
5544			@*.70@	4	01595	
5544			@ 0@	5	01600	
5544			@1CX02@	5	01605	
5544			@1CX 2@	5	01610	
5544			@0.*,0@	5	01615	
5544			@5@,@	3	01618	
5544			@0,*.0@	5	01623	
5544			@5@.@	3	01626	
5544			@5,@*#@	5	01631	
5544			@5.@*#@	5	01636	
5544			-7007	4	01640	
5544			@$0V@	3	01643	
5544			£0C	2	01645	
5544			@ $V@	3	01648	
5544			@,0@	2	01650	
5544			@.0@	2	01652	
5544			@ @	2	01654	
5544			@,*0@	3	01657	
5544			@.*0@	3	01660	
5544			@*,M0@	4	01664	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5544			@*.MO@	4	01668	
5544			@Z @	2	01670	
5544			@Z*M*@	4	01674	
5544			@0.0@	3	01677	
5544			@, @	2	01679	
5544			@0,0@	3	01682	
5544			@. @	2	01684	
5544			@ *$0@	4	01688	
5544			@6.0@	3	01691	
5544			@$6.0@	4	01695	
5544			@0C$0@	4	01699	
5544			@.30@	3	01702	
5544			@,30@	3	01705	
5544			@ ,30@	4	01709	
5544			@ .30@	4	01713	
5544			@XG@	2	01715	
5544			@ X @	3	01718	
5544			£0C008	5	01723	
5544			£44	2	01725	
5544			@08@	2	01727	
5544			-045	3	01730	
5544			£032	3	01733	
5544			@0C1 @	4	01737	
5544			@ACD@	3	01740	
5544			@NC0E@	4	01744	
5544			@JCQ@	3	01747	
5544			@X0 00@	5	01752	
5544			@X 550@	5	01757	
5544			@ ,0@	3	01760	
5544			@ .0@	3	01763	
5544			@8 @	3	01766	
5544			£500	3	01769	
5544			UJ	5	01774	29933
5544			UU	5	01779	30359
5544			@ @	1	01780	
5544			@00000@	5	01785	

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PGLIN    LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

5544                    @34999@                                           5  01790
5544                    &00014                                            5  01795
5544                    LTABLE                                            5  01800  33902
5544                    WORK17                                            5  01805  33615
5544                    @55@                                              2  01807
5544                    WORK18                                            5  01812  33617
5545
5546             ORG    1994                                                 01994
5547     ALPHA   DCW    &999          UNITS POSITION IN EVEN ADDRESS      3  01996
5548                    @ @           DUMMY POS TO FORCE NEXT FIELD ODD   1  01997
5549     WORK3A         @  @          UNITS POSITION IN ODD ADDRESS       2  01999
5550
5551             END    START                 12/15/63  KRB                      J02000
                                              END OF ASSEMBLY
```